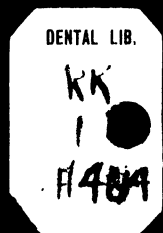
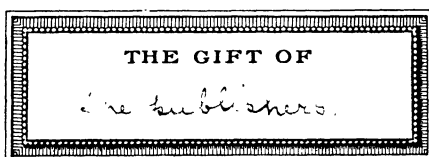
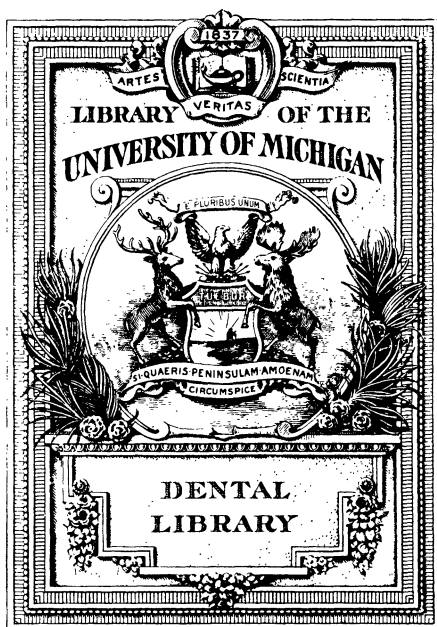


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# *The* AMERICAN DENTAL JOURNAL

DR. BERNARD J. CIGRAND, Editor

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## *Editorials and Comments*

"The editor assumed charge of this journal with the signed understanding that he shall have absolute and unlimited control and supervision of the editorial and literary elements; this unusual grant makes it possible to render the profession an independent peri-

odical; the title page clearly indicates the scope under the new policy of this old established journal."—*Publishers.*

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### ARE WE JEALOUSLY GUARDING THE PUBLIC HEALTH?

The ethical practitioners of dentistry are constantly taught at the society meetings the essential and all important subject of hand and instrument sanitation. The reckless dentist who is disregarding the cleanliness of his digits and who is unmindful of the disinfection of instruments is a menace to the community. No more certain way of spreading the disease of tuberculosis except by advocating indifference of finger and instruments cleanliness could be imagined. It would almost seem quite within the province of the Department of Health to examine into the practice of all dentists, and where the investigation positively demonstrated the disregard for cleanliness of hand and instrument, a temporary revocation of his license might remind him of the teachings he received while at college pertaining to the subject of "office hygiene." This rigid enforcement of compelling practitioners to disinfect their hands and dental instruments would not only be a safeguard against the spread of tuberculosis especially,

but would be the means of preventing contagion of many other ravaging human disorders.

In dentistry the supposedly simplest of all operations, namely, that of cleaning the teeth, is often productive of serious and injurious results, and not infrequently a patient presents a single tooth possessing pyorrhea pockets. The thoughtless and careless operator, dipping excavators in these pockets, proceeds to the adjoining healthy teeth. In less than ninety days he has, by this reckless attention, inoculated the entire gums with patho-genic life, whose ravenous appetite for human tissues is beyond the description of any scientist. The proper cleaning or purging of the teeth is essentially one of the most delicate and painstaking procedures in the art and science of dentistry. Peculiarly enough there is a strange coincidence between the raging of tuberculosis and the raging of dental decay, both diseases or ailments have periods of cessation; at times, hence, the human body seems immune to every attack. Both of these agencies flourish pre-eminently between the ages of 15 and 35. Dental decay in the major number of cases practically disappears, as does tuberculosis, as age creeps in. Hence the importance of looking into the welfare of those who are entering the prime of life. This nation, quite contrary to the estimation of former President Roosevelt, is not suffering from a lack of birthdays so much as it is from a lack of celebrating birth anniversaries. We have a great birth rate in the United States, but coupled with it is an overwhelming death rate of child and juvenile. Save the children that are born and we need have no fear for the depopulation of the land. Let the central government at Washington, the governments at State capitals, and municipal governments spent one-half as much money on prevention as they now expend on the cure, and our country as a whole will have attained a physical perfection which will redound to the endurance of the Republic.

The most astonishing feature relative to the causes of tuberculosis lies in abnormal conditions of the mouth; the large cavities filled with indescribable debris certainly tend to disarrange the entire digestive system. The conditions of these cavities, when carefully examined under a microscope, give evidence of a most prolific micro-organic life. These cavities, hidden away from the access of a tooth brush, are splendid harbors for the generation of tubercularage. Nowhere in the entire human economy could you find a more congenial

habitation for the germs of tuberculosis than in the deep-seated cavities of teeth, while they possess the three requisites to give assurance to their reproduction, namely: heat, moisture and oxygen.

The bacillus of tuberculosis is present and doing mischievous work in many mouths which have had so-called dental attention. The average cement filling is a porous material with caverns large enough for a conglomerated mass of putrid vegetable and animal debris to lodge. Within this apparently well fitting cement filling there is a splendid shelter for myriads of bacilli to colonize, hence the large cement filling is not a safeguard against bacterial generation because of this sponge-like porosity. The amalgam filling shares a like objection, but not because of its porosity, but because of its general changeability. The masses of amalgam, shortly after hardening, shrink, allowing its circumference a wide gap between the border and the walls of the cavity. In this circular opening, clogged with the fluids of the mouth and disintegrating matter or bacilli, tuberculosis again finds a happy shelter. Gutta-percha, as frequently employed by some of the practitioners, is absolutely unreliable as a means of excluding tubercular matter. Careful personal tests of the cement, gutta-percha, and amalgam fillings lead you to the belief that the gold leaf filling, the porcelain and gold inlay, are the only fillings giving promise of tubercular exclusion; and, though the inlay fillings are held in position by a thin film of cement, it nevertheless does not possess bulk and hence must necessarily be more assuring in its sealing properties. Let our inventive genius and researcher get busy and encourage them.

The barbaric fashion of prodding the teeth with cheap wooden toothpicks, from whose sides bristle forth infinitesimal splinters, inaugurate inflammation of the gums, besides causing openings between the teeth which should be tightly filled with gum tissue. The gums are filled with broken bits of wooden slivers, and the opening created becomes filled with decay as disintegrating masses of foodstuff collect, and in this convenient habitation we have again erected a temple to the goddess of tuberculosis. It should be unlawful to sell these rough and splinter-bedecked toothpicks; they inaugurate a variety of dental troubles and lead to producing harbors for the micro-organic life.

It should be our field of endeavor to teach ourselves, and then

our patients, the proper method of food mastication. If we preach, we of course should practice, and what better opportunity of service than to instruct by example. Let your patients understand the value of earnest mastication, with its importance of food salivation.

Another element in a deranged mouth which adds to the likelihood of consumptive possibilities is the ulcerated tooth, belching forth patho-genic fluid called pus. This virulent matter seeping from the gum finds its way to the stomach easily; while this presence, so unwelcome to the gastric glands, prevents a proper gastric bath to the foods which lie within the walls of the stomach. Nor is the presence of the pus limited to the stomach alone, but follows the entire elementary tract, endangering the entire system and digestion and eventually bringing about poisoned conditions of the entire human fabric. Having thus undermined the circulatory system, the feeble, emaciated and degenerated being falls easy prey to the tubercular-bacilli, whose attack cannot be withstood because of the lack of human vigor and cell energy. Another important attribute of robust health demands that the mouth be in a positively sanitary condition against so-called pyorrhea alveolaris, or the wasting away of the alveolar ridge which contains the teeth; for in this process the pus germs are fully as dangerous to health as the decayed and the ulcerated dental organs. There are innumerable conditions of the mouth which yield pus as a result, that all of these dental disturbances which inaugurate this poisonous matter must be relieved and cured or the pus upon being swallowed will invite the white plague—consumption.

As practitioners of dentistry it is our civic function to prevent as well as cure, and the former is the more humanitarian practice. Preservation is the key to body salvation, as is conservation to the national existence. Conservation, preservation, restoration—this is modern dentistry. Extraction is surgery; it doesn't belong to dentistry.

The great public is rapidly educating the dentist to a realization of the importance of saving teeth; of saving all the teeth; and the time is not far distant when the loss of a tooth or a root that can be made usable will be found only in the limbo of the things that were. Before a gathering of dentists your editor said:

"Our patients are our kindest teachers, if we will but listen to them; and the man who does not get the right impulse from his busi-



## HON. THEODORE ROOSEVELT

"Individual health is the nation's best asset."—*Roosevelt.*

"Good health depends on perfect dental organization."—*Editor.*

(From the Cigrand Historical Collection.)

*Compliments of American Dental Journal.*





ness is not in love with it. It is my patients, it is your patients, that make us climb hills and scale mountains; that make us lie through sleepless nights, thinking, thinking what may be done to save their teeth, preserve their usefulness and beauty, and restore or maintain health."

Let us maintain the dignity of our calling, and as sentinels of the human health act well our part in the military scheme of human progress. Let us make an untruth of these old English lines:

"A dentist, dear, makes teeth of bone,  
For those whom fate has left without,  
And finds provision for his own  
By pulling other people's out."

## COMMENTS.

We must not allow ourselves to become ultra specialists in any one thing, to the exclusion of other and attributory elements. We hope dentists will never get to a point where they are interested in any one phase of work so much that they cannot interest themselves in the work in general. For then when we want thorough work they are only versed in one phase of the work, and the results are not favorable. No specialist can exempt himself from contact with the general system. The human form is not like a chessboard—all organs and accessories are tied together.

We visited the Elgin watch factory some weeks ago, and there is not among the employes a watchmaker in the whole factory, not a watchmaker entirely trained to construct a complete watch; he may make some parts, but not the entirety. They were turning out thousands of watches, yet there was not a real watchmaker in the place. Each knew his little thing to do, one made a hinge, another made the wheel, another fitted glass, another made the case; they were simply specialists, each one did his own little part of the work, and there was not a watchmaker among them. Such specialism we do not want in dentistry. We do not want to simply be specialists, men who are interested only in anesthesia or in inlay work, or amalgam, or crown and bridge, but generally interested in all of these; we wish that this might be the feeling of the dentists all over the country to-day. Generally and particularly more has come to our professional merits by men who understand generally all of these things, rather than from others who specialize in one single phase.

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Dr. W. A. Evans, Commissioner of Health of Chicago, was the speaker at the last meeting of the Chicago Odontographic Society, and in this address made the most emphatic and logical argument yet heard in favor of municipal dental service to the worthy poor. The readers of THE AMERICAN DENTAL JOURNAL will be afforded the treat of reading in the January issue a "Summary of Dr. Evans' lectures on 'Dental Neglect.'"

# SPECIAL CONTRIBUTIONS.

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## SPECIFIC CAUSE OF CARIES AND EROSION IN HUMAN TEETH—LOGICAL THEORIES AS TO PYORRHOEA OBSTINATE.

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BY J. OXFORD KELLER, D. D. S., OF CHICAGO.

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Since the advent of W. H. Miller and other advocates of the micro-organic theories of decay a lactic acid chemical agency has been ascribed as the sole caries cause. All of the different physical and chemical characteristics of rot in human teeth are said to be produced by a single acid decomposition, according to Miller, Black, Kirk, Williams, Brown, Regnard, Magstot and others.

Instead of tooth decay being caused by single chemical agency, it will be shown by physical and chemical experiments and with good reason and sound logic, in this paper, that there are three specific classes of dental caries. They are as follows:

First. Neutral salt decay.

Second. Neutral salt-acid decay.

Third. Neutral salt-alkaline decay.

Neutral salt-acid means neutral salts with excess acidity and vice versa, excess alkalinity. There can be no single lone acid or alkaline tooth decomposition. The chemical constitution of human saliva forbids.

### ACID, ALKALINE, NEUTRAL SALT, AND ACRID AGENCIES IN THE SALIVA.

The salivary secretions may contain, in combination or association, such acids as lactic, muriatic, sulphuric, acetic, oxalic, phosphoric, malic and carbonic; such alkalies as potassium, calcium, sodium, magnesium, and the chlorides, hence, contains such neutral salts as lactates, muriates, sulphates, phosphates, carbonates, etc., etc., of potassium, calcium, and other alkalies mentioned in accompanying formulas of teeth, bone, blood and saliva; also such acrid agencies as potassium sulphocyanide, potassium chloride, and sulphuretted hydrogen. They may or may not contain such acids, alkalies or salts.

Neutral Salts Defined.—A chemical combination of acid and base

or salt, or two or more elements, by which they are rendered immune under ordinary physical and chemical relations; but may become active or very active, in contact with elementary substances or compounds for which they have different or higher chemism. The accompanying sets of formulas of teeth and bone contain five, and blood and saliva, each, thirteen neutral salts. Potassium phosphate and potassium sulphocyanide are among the class of neutral salts, both in blood and saliva. They are comparatively inert in the system, necessary and harmless. Micro-organic life may culture in them. Yet their chemism by chemical reaction is so strong as to decompose lime salts of enamel or dentin. Either all of the potassium or cyanide in the human body set free from all except aqueous chemical union would cause instant death. In combination, they are necessary to the higher orders of organic life.

In determining the specific causes of caries in human teeth it is necessary to consider by comparative analogy the chemical formulas of the enamel, dentin, cementum, human bone, human blood, and human saliva, to consult each decomposing constituent, its chemical relations with its associate chemical constituents, so as to learn their inequality of chemical agency; also the atomic molecular and cellular constitution of human teeth. Decay of the teeth primarily results from an equalization and adjustment of chemical forces in and between tooth bone, acids, alkalies, and neutral salts in the salivary secretions.

Therefore, the following formulas and atomic molecular and cellular constitutions of human teeth are given:

ENAMEL AND DENTINE—THEIR CHEMICAL COMPOSITION.

<i>Enamel.</i>		<i>Dentine.</i>	
Calcium phosphate . . . . .	85.3	Calcium phosphate . . . . .	62.0
Calcium carbonate . . . . .	8.0	Calcium carbonate . . . . .	5.5
Calcium fluoride . . . . .	3.2	Calcium fluoride . . . . .	2.0
Magnesium phosphate . . .	1.5	Magnesium phosphate . . .	1.0
Sodium salts . . . . .	1.0	Sodium salts . . . . .	1.0
Water and animal matter	1.0	Gelatin and water . . . . .	28.5
<hr/>		<hr/>	
100.0		100.0	

## CEMENTUM AND HUMAN BONE—THEIR CHEMICAL COMPOSITION.

<i>Cementum.</i>		<i>Human Bone.</i>	
Calcium phosphate . . . .	55.99	Calcium phosphate . . . .	57.2
Calcium fluoride . . . . .	2.74	Calcium carbonate . . . .	6.5
Calcium carbonate . . . . .	7.22	Calcium fluoride . . . . .	1.6
Magnesium phosphate . . .	0.99	Magnesium phosphate . . .	.9
Sodium salts . . . . .	0.82	Sodium salts . . . . .	.8
Cartilage and water . . . .	31.31	Cartilage and water . . . .	33.2
Fat . . . . .	0.93		
<hr/>		<hr/>	
100.0		100.0	

## HUMAN BLOOD AND SALIVA—AVERAGE CHEMICAL COMPOSITION IN 1,000 PARTS.

<i>Human Blood.</i>		<i>Human Saliva. . . .</i>	
Water . . . . .	784.39	Water . . . . .	957.78
Albumen, fibrin and corpuscles . . . . .	192.20	Solid matter . . . . .	11.00
Organic material . . . . .	1.40	Organic material . . . . .	9.20
Sodium chloride . . . . .	3.60	Potassium sulphocyanide . .	1.35
Potassium chloride . . . .	1.20	Potassium chloride . . . .	2.28
Potassium sulphocyanide . .	.65	Potassium carbonate . . .	1.09
Potassium sulphate . . . .	.82	Potassium sulphate . . . .	1.35
Potassium carbonate . . . .	.87	Potassium phosphate . . .	2.07
Potassium phosphate . . . .	1.05	Magnesium sulphate . . . .	1.56
Magnesium chloride . . . .	1.43	Magnesium chloride . . . .	2.81
Magnesium sulphate . . . .	.65	Magnesium phosphate . . .	1.95
Magnesium phosphate . . . .	.91	Sodium phosphate . . . . .	.63
Sodium sulphate . . . . .	.35	Sodium carbonate . . . . .	2.05
Sodium phosphate . . . . .	.50	Sodium sulphate . . . . .	.95
Calcium phosphate . . . . .	1.35	Calcium phosphate . . . . .	2.08
Calcium carbonate . . . . .	1.13	Calcium carbonate . . . . .	1.85
Extractive matter . . . . .	6.40		
<hr/>		<hr/>	
1,000.00		1,000.00	

In order to show the chemical actions and reactions of acids and alkalis in the decay or decomposition of tooth structures, the following atomic, molecular and cellular arrangements in human teeth are given.

The enamel contains about 99 per cent inorganic salts with 1 per cent animal matter and water, and dentin about 72 per cent inorganic salts with 28 per cent organic matter and water. Cementum and human bone are almost analogous in chemical composition, containing each about 68 per cent inorganic with 32 per cent organic matter and water. See foregoing formulas.

The acids, alkalis and their neutral salts have the highest chemical affinities for the calcium salts of the teeth, the reasons for which will be shown later. Some of the alkalies have very high chemism for the carbonates and phosphates, especially the element potassium and its compounds.

Atomic Constitution.—The lime and magnesium salts of the human teeth are made up with the following elementary substances: Calcium, phosphorus, carbon, fluorine, magnesium, sodium, chlorine, oxygen, and hydrogen.

Molecular Constitution.—The following kinds of molecules composed of the foregoing elementary substances in chemical combination make up the inorganic salts of the enamel, dentin, cementum and human bone. One molecule of calcium carbonate ( $\text{CaCO}_3 = \text{CaO CO}_2$ ) is composed of one molecule of carbonic acid and one molecule of calcium oxide in chemical unity. One molecule of carbonic acid ( $\text{H}_2\text{CO}_3$ ) contains two atoms of hydrogen, one of carbon, and three of oxygen. Calcium oxide ( $\text{Ca O}$ ) is composed of one atom of calcium and one of oxygen. It will be seen therefore that a molecule of carbonate of lime contains one atom of carbon, two atoms of hydrogen, one atom of calcium and four atoms of oxygen. One molecule of calcium phosphate ( $\text{Ca O P}_2\text{O}_3\text{H}_2\text{O} = \text{Ca O}_5\text{P}_2\text{H}_2$ ) is composed of one molecule of calcium oxide in chemical union with one molecule of prima-basic phosphoric acid. One molecule of prima-basic phosphoric acid ( $\text{P}_2\text{O}_3\text{H}_2\text{O} = \text{P}_2\text{O}_4\text{H}_2$ ) contains two atoms of phosphorus, four of oxygen and two of hydrogen.

Enamel and dentin contain about 3 per cent of fluoride and  $1\frac{1}{2}$  per cent of magnesium phosphate lime salts. Their atomic and molecular arrangement are of the same plan of construction as the other chlorides and phosphates of the teeth.

Calcium fluoride ( $\text{Ca F}_2$ ) is made up with one molecule of calcium oxid and one molecule of diatomic fluorine gas. The latter unites with every element except oxygen. It is a constituent of some

of the most powerful acids; hence, its liability to enter into new chemical relations. It has the highest chemism for the element potassium and its compounds.

Magnesium phosphate is of less importance in producing decay processes because of its small percentage. Its phosphoric acid has a higher affinity for the potassium salts because of a feeble affinity in the magnesium phosphates.

Calcium phosphates are the basic units in enamel dentin. Its phosphates, carbonates and fluorides compose about 97 to 99 per cent of enamel dentin, cementum and all osseous tissues. The elements phosphorus carbon, oxygen and hydrogen constitute the various acids which unite this basic element into the hardest of known organic substances.

Atomic, Molecular and Granular Constitution of Phosphate Cements.—The units of strength and stability in phosphate cements are calcined particles of zinc oxids. Very small flour-like particles of zinc oxids may be known as molecular and the larger sizes as grit or granular zinc oxids. The former unite in chemical union with phosphoric acids by a body crystallization, the grit or granular zinc oxids unite by surface crystallization. The foregoing formulas show that tooth structure is composed largely of calcium phosphate and it is well known that cements used for setting crowns and bridges and inlays are zinc phosphates. Zinc phosphates are subjected to the same disintegrating chemical agencies in the mouth as human teeth. They have an analogous chemical composition; that is, they are respectively zinc phosphates and lime phosphates; hence, it may be concluded on the ground of analogy that the decomposition of human teeth and phosphate cements are produced by the same classes of chemical agencies in the oral cavity; therefore the following atomic, molecular and granular constitution of phosphate cements are given.

Phosphate cements are zinc phosphates. One molecule or particle of granular zinc oxid will respectively body and surface crystalize together into cement mass. They do not unite in chemical equivalent proportions because the zinc oxid particles are not reduced to ultimate molecules; that is, the smallest of zinc oxid particles used in making phosphate cements, either the so-called molecule or granule, may contain thousands and even millions of the ultimate zinc oxid molecules containing one atom of zinc and one atom of oxygen, two atoms in

all. Phosphate cements are in chemical relation only so far as the zinc oxid particle satisfies its chemical affinity for phosphoric acid either by body or surface crystallization. One so-called flour-like zinc oxid particle or molecule or granule may require thousands or even millions of the ultimate molecules of phosphoric acid to satisfy its chemism in the cement mass.

Phosphoric acid and phosphate liquids have the following atomic and molecular constitution. They are tri-basic, differing in their basic characteristics in comparison with prima-basic lime phosphate in the teeth.

Tri-basic phosphoric acid is composed of one molecule of phosphoric oxid and three molecules of water; thus ( $P_2 O_3 \cdot 3 H_2 O = P_2 O_6 H_6$ ) therefore the molecule of tri-basic of phosphoric acid in cement liquids and used in preparing phosphate cement contains two atoms of phosphorus, six atoms of oxygen and six of hydrogen, while the molecule of phosphoric acid in the phosphate lime of the teeth contains two atoms of phosphorus, four of oxygen and four of hydrogen. These relative differences show one reason why the lime phosphate salts in enamel and dentin are less liable to chemical disintegration by the alkaline agencies in the salivary secretions. It is well known that the element potassium has a very high affinity for oxygen as it is this high affinity, tending to oxidation and the larger percentage of the oxygen element in phosphate cements in comparison with lower oxygen ratio in the phosphate lime salts, which renders the human teeth less liable to decomposition than the phosphate cement mass. A molecule of phosphoric acid in tooth structure contains four and in phosphate cement mass six atoms of oxygen.

Potassium Element.—In close relation with the foregoing atomic and molecular constitution of human teeth and because of the preponderating agency which the compounds of the element potassium play in the chemical decomposition of these organs, its physical and chemical properties are here given.

Properties.—Pure potassium is a bluish white metal with specific gravity less than water. It oxidizes at once on exposure to the air, becoming coated with a film of oxid. It deliquesces by absorption of atmospheric moisture on prolonged exposure into a hydrate and carbonate. At ordinary temperatures it is so soft that it can be kneaded between the fingers and cut with a knife. A pellet of potas-



sium thrown on water bursts out into a violet flame because of its high affinity for oxygen of the water, its hydrogen being set free and on fire. So high is the basic character of this element that the strongest ammonia behaves like an acid in comparison.

Potassium Salts.—There is only one series of potassium salts and these are formed by the chemical union of potassium hydrate with vegetable and mineral acids. There are many of them; hence, it enters into more chemical and pharmacal compounds than any other element. They dissolve so readily, enter into so many new chemical relations and potassium fuses at such high heat that most all of its compounds, because of different degrees of chemical unity, have ready decomposing effects on tooth structure. Potassium hydrate gives the most destructive results. It releases from its combinations in the potassium salts because of its higher affinities for the acids in tooth substances, and frees the calcium oxids. It is never destroyed in entering into any of these various relations like many acids. The latter may be decomposed or changed into new and comparatively inert compounds, but potassium hydrate, either free or combined, in sufficient strength is an active agency of rot in human teeth. It is the main latent hidden force of decay in the salivary salts.

The advocates of Miller's micro-organic theories of decay, and even Miller himself, have never classed the alkalies nor their salivary salts as an agency of caries; hence, in close connection in this paper with the atomic and molecular constitution of human teeth, the following logical reasons are given for the chemical action of said salts on tooth structure: The physical and chemical properties of the element potassium show that it has a high chemism for the element oxygen. On the ground of analogy the potassium compounds have an affinity for other compounds containing the element oxygen, the degree depending upon quantity, chemical relations and conditions. It is a universal law in physics and chemistry that what is true of a part may be affirmed of the whole to which it belongs. A single molecule of calcium phosphate (equation  $\text{CaOP}_2 \text{O}_3 \text{H}_2 \text{O}$  equals  $\text{CaP}_2 \text{O}_5 \text{H}_2$ ) contains, with other atoms, five atoms of oxygen and one atom of calcium. It is the high affinity of potassium and its salts for oxygen which make them active agencies of decay. Whenever the chemical force of these alkaline constituents have a higher attraction for the acids holding the lime salts together than these acids have for their

lime bases, tooth decay results because of different degrees of chemical power. Strange as it may seem, the enamel, the hardest of all known organic substances, contains in its phosphate molecules one atom of the calcium element to five atoms of oxygen. The former is the basic element and the latter a gas element which enters into more chemical relations and varied combinations than any other.

The writer may have occasion to frequently refer to these different degrees of chemical forces in this series of papers giving caries causes.

Caries, decay or decomposition of the teeth, would be caused by either the acid, alkaline, neutral salt, or acrid chemical agencies in the salivary secretions, if in sufficient strength.

• Acid Decay.—Dental caries would be (but is not) caused by the action of acids, such as lactic, muriatic, sulphuric, phosphoric, etc., if in sufficient strength. It will be shown in this paper that such acids neither obtain nor develop free and alone in the saliva in such strength. If such acids should obtain in the mouth in sufficient strength and quantities as to produce carious decomposition (enamel, about 85 per cent; dentin, 62 per cent; calcium phosphate and 8 per cent calcium carbonate) the chemical reaction would be as follows:

Chemical Reaction.—Aforementioned acids, free and uncombined in the saliva, would first attack the calcium carbonate of tooth structure (see formulas) because of the higher chemical affinity which said acids have for the calcium, liberating the carbonic acid and respectively form such salts as lactates, muriates, sulphates, and phosphates of lime, according to the acid used.

Different Degrees of Chemism.—It is well known that the acids aforementioned have, each, a very strong chemical affinity for the lime of the calcium carbonate. They have a much higher chemism for said calcium than said calcium has for the carbonic acid with which it is in combination; hence, the carbonic acid gives up its union with the lime, which would become a lactate of lime in a lactic acid reaction. The carbonic acid escapes or forms carbonates. The extraction of the calcium carbonates from the enamel or dentin (in about 8 per cent of their structures) makes the tooth substance somewhat porous. The calcium phosphate thus brought in contact with the stronger acids (such as lactic, muriatic, sulphuric) would be decomposed by chemical reaction and liberated, resulting in decomposition or dental caries.

Evidences of Chemical Reaction Aforementioned.—Pour a 10 to a 25 per cent aqueous solution of any of aforementioned acids in a fluid ounce bottle, half full. Place in said dilute acid a recently extracted human tooth. Allow to stand several days. In the meantime, note the action of said dilute acid on the tooth structure. Their higher chemical affinity for the lime of the carbonate than the carbonic acid will cause the latter to escape. During this chemical reaction globulettes of carbonic acid will cling to the outside of the tooth structure. As many as 500 of these globulettes may be seen on a single tooth with a magnifying glass, and many with the naked eye.

The acids in the dilute test liquid will decompose the lime in the tooth structure. After several weeks, months, or years, of digestion in the test liquids, according to strength, the tooth will be found to be completely decomposed. It will first begin to dissolve in its weakest parts. Cementum rots first; next the apex of the root, containing the most organic matter and cellular structure, is the first to decay. Any of the aforementioned acids, free and uncombined, in the salivary secretions and in sufficient strength will decompose the teeth.

A tooth placed in any of dilute acids aforementioned and allowed to digest a few months or a year or two, according to acid strength, will become completely disintegrated. The lime salts will be distributed in white flocculent, snowy like masses throughout the test liquid. White decay indicates excess acid conditions and is known as potassium neutral salt-acid caries.

Alkaline Decay.—Dental caries would be (but is not) caused by the action of alkalies in the saliva, such as potassium, except as excess alkalinity in association and assistance to neutral salts, sulphocyanides and chlorides, etc., if in sufficient strength. If potassium hydrox should obtain, free and alone, in the mouth in sufficient quantities and strength as to produce caries, the chemical reaction would be as follows:

Chemical Reaction.—Potassium, chemically combined, is an abundant element, according to its strength, in the blood and salivary secretions. It has a very strong chemical action and reaction and forms the most powerful of the alkaline salts. Free and uncombined in the saliva, as potassium hydrate, it would first attack the calcium carbonate of tooth structure (average calcium carbonate about 8 per

cent, both enamel and dentin), because of its very high chemical affinity for its carbonic acid. The calcium would be liberated from its combination with the acid and potassium carbonate would result. The remnant phosphate of lime in the tooth will also be rapidly disintegrated by the potassium element, because it has a higher affinity for the phosphoric acid of the calcium phosphate than said phosphoric acid has for the lime, with which it is in chemical combination; hence, the potassium will unite with the phosphoric acid, form potassium phosphate and liberate the lime from its chemical union. The tooth structure disintegrates and dental caries result. (See formulas.)

Chemical Experiment.—Pour a 5 to 25 per cent aqueous solution of potassium hydrox in one ounce bottle, half full. Place in same a recently extracted human tooth and allow to digest several days, months, or years, according to strength. Decomposition will result by chemical reaction, as aforementioned. The human tooth structure will be distributed over the floor of the bottle in granules, large and small, evidence of chemical action, reaction and decay. These granules will have a varying grayish-brown color, according to different tooth structures. The color, method of breaking down and granular distribution indicate alkaline decomposition, or alkaline decay. Gray or grayish-brown decays in teeth will be known in this paper as potassium neutral salt-alkaline caries.

The proposition that dental decay is caused by the neutral salts of the salivary secretions as a main fundamental cause, may be a surprise. The writer has explained this cause to many leading dental practitioners. A negative shake of the head generally resulted after a few moments of surprised consideration. This paper will show that the salts of the saliva, especially the potassium neutral salts, are the main, fundamental causes of this malady.

Foregoing Formulas.—Observe as to teeth, bone and saliva. Notice that the blood contains all the acids, alkalies, and neutral salts, which may be found either in the enamel, dentin, cementum, human bone, and saliva, resulting from systemic causes. These anatomical parts all derive their constituents from the blood; hence, a chemical similarity.

The foregoing chemical experiment with the element potassium, in aqueous solution as potassium hydrate, shows that said element

readily dissolves tooth bone. It is much more rapid in its chemical action than the ordinary acids. This results because the alkaline element potassium has the highest chemical affinity of any in its class. Its hydrate is the most powerful caustic and escharotic known, quickly destroying the life of the parts with which it comes in contact. It enters into more chemical compounds and official preparations in pharmacy than any other alkali. Because of its active chemical affinity and readiness for chemical actions and reactions, it must be considered an important agent, in combination with acids, as neutral salts in the blood and saliva, in the decomposition of human teeth. The chemical relation which this element bears with acids in the saliva, with chemical action and reaction, is given in a paragraph under the heading, "Alkaline Decay."

Neutral Salt Decay, a Double Chemical Reaction.—Observe the foregoing formulas of tooth bone and saliva and notice the similarity of chemical composition. Calcium phosphate, calcium carbonate, magnesium phosphate, and sodium salts are found, each, in the enamel, dentin, cementum, blood and saliva. The saliva contains five potassium, three magnesium, three sodium, and two calcium neutral salts. Also note the absence of lactic acid, or any of its neutral salts, either in the human blood, human saliva, teeth or bone. The following chemical experiment will show the double chemical reaction which some of the neutral salts of the salivary secretions have on tooth structure, and give strong evidence that said salts are the main fundamental causes of dental caries.

Double Chemical Reaction.—When the neutral salts (say either potassium, lactate or phosphate) obtain in the salivary secretions in such strength as to destroy tooth bone, a double chemical reaction takes place. Other potassium-acid salts may be present. In aqueous solutions in the saliva these salts will come in contact with the enamel, dentin, cementum, or alveolar process. According to the foregoing chemical experiments under "Acid Decay," and "Alkaline Decay," the double chemical reaction would be as follows:

When potassium carbonate, phosphate or sulphate comes in contact with tooth bone, four chemical forces conflict and begin war on each other.

First, the potassium element in its neutral salt has a certain chemism for carbonic and other acids in tooth structure.

Second, the calcium and other bases of the tooth have a chemical force for the lactic or any other acids of the neutral salts.

Third, the lime and acids in the teeth by stability of chemical union do most to maintain the integrity of tooth structure.

Fourth, the neutral salts in the salivary secretions, composed of an alkali and an acid, are also held together, while in solution, by a chemical force.

A double chemical reaction results accordingly. The potassium element, in its neutral salt, has a higher affinity for the phosphoric and carbonic acids of tooth bone than said acids have for the lime with which they are in combination; hence, the potassium element will give up its union with its acid in the saliva, enter into new combination, and form potassium phosphate or carbonate. The lime is liberated, and immediately enters into chemical union with the acid, thrown off by the neutral potassium lactate salt. Other salts are formed, and caries results. These four forces, two latent and two active, one series acid and the other alkaline, are continuously gnawing at lower affinities and cause the teeth to decay.

No one will attempt to deny that either the ordinary acids or alkalies, in sufficient strength, will dissolve tooth structure; hence, a logical conclusion that such acids and alkalies, combined in neutral salts, some of which acids or alkalies have a higher affinity for certain component parts of the tooth, will dissolve it, by double chemical reaction, because of the different degrees of chemical power. The action of the neutral salts on human teeth is an equalization of chemical forces. But for this inequality of forces teeth would not decay.

**Weak Link in Teeth.**—Calcium carbonate may be called the weak link, or missing link, in the teeth. Carbonic acid is a gas and enters into many more physical and chemical compounds than any other. About 8 per cent of the whole human tooth, or any of its lime salts, is carbonate of lime. At ordinary gas density there is enough carbonic acid in a full set of human teeth to fill a two gallon jar, enough to asphyxiate. In the teeth this carbonic acid is condensed into the hardest known organic structure. Its tending force is for liberation and escape; hence, its readiness to combine with alkaline substances. It readily unites with the potassium element, forming potassium carbonate, and frees its lime associate, which becomes lactate, phosphate, or sulphate of lime, according to the acids concerned. But for the

presence of calcium carbonate in the tooth structure, caries of human teeth would be much less frequent.

Physical and Chemical Experiments.—Place a recently extracted human tooth in a 5 to 50 per cent aqueous solution of potassium phosphate or potassium lactate. Sulphuric, muriatic, or other strong acid potassium neutral salts could be used. Allow to digest several days, months, or years, according to the strength of the solution. Lying in the solution, the tooth will appear to be not affected by the neutral salt. It will remain in form and the organic matrix seem to be secure. In due time, remove the tooth from the solution. It will have a dead-like, lifeless color and be semi-opaque. Physical examination will show that the tooth is soft because most of its mineral salts have been removed, and so soft as to be easily cut with a razor or sharp knife. If allowed to remain in the solution a sufficient length of time, the tooth and even organic matrix can be broken up with the finger nail. This kind of decomposition, with unbroken organic matrix, rot proceeding underneath, is what is known as neutral salt decay. All neutral potassium salts, which contain either acids or alkalies, with higher affinities for tooth structure than the chemical forces, which unite and hold together said structure, will cause such decays. When there is an absence of physical forces, such as masticatory friction, the friction of a tooth pick, the organic matrix may long remain secure while decay proceeds underneath. Such decay processes are dead-like in color and appearance.

Neutral salt decay is a kind which Dr. Black describes in his *Operative Dentistry*, in which the enamel matrix is not broken up. In Volume I, page 67, he says as follows:

“In that case, we find a very large amount of material that is soft and spongy, which may be easily cut with a sharp excavator, or, after removing the overlapping enamel that may interfere, a spoon excavator may be passed along the margin of the decayed area, and the whole of it may be turned out in a body, soft enough to be cut with a razor or sharp knife. Occasionally we see almost the entire interior of the enamel cup, softened in this way, and yet the organic matrix is not yet broken up.”

With the exception as to color and appearance, the above quotation from Dr. Black gives a good description of a “Neutral Salt Decay.”

Neutral Salt-Acid Decay.—Many acids may be associated as component parts of neutral salts in the blood, and consequently in the human saliva, in large percentages comparatively. As such they are necessary and harmless. Under diseased and abnormal systemic conditions, both the human blood and saliva may become excessively acid; but an acid condition of the salivary secretions do not mean an absence of neutral salts, but more acid than can be neutralized by the alkalies, and vice versa as to excess alkaline conditions. About normal neutral salt percentages obtain in healthy blood and saliva.

Excess acid conditions seldom continue very long—a few hours or days only. Sometimes they may be so strong as to set the teeth on edge and cause excessive salivary flow. According to the laws of nature, a renewal of health conditions, so far as acidity is concerned, soon takes place. However, slight acid or alkaline conditions, not noticeable by taste or otherwise, either one or the other, are present. It is seldom that exact neutral conditions obtain and remain. Alkalinity generally prevails.

It is during the time of such excess acidity of the salivary secretions that neutral salt-acid decay takes place. The same double chemical reaction as in the neutral salt process of decay, plus the acidity conditions (see "Acid Decay") will result. Instead of neutral salt decay conditions with unbroken organic matrix and consequent appearance and physical condition, the decayed part will be partially or completely decomposed. Instead of a semi-translucency, the decay will have a white appearance. The lime salts will clearly show a whitish or but slightly dark color, according to the percentage of excess acid condition. More acid, more snow-like the decay. White decays in human teeth, therefore, are known as neutral salt-acid caries or acid decay.

Neutral Salt-Alkaline Decay.—This class of decay results from chemical reaction according as given in "Neutral Salt Alkaline Decay" (or alkaline decay). The same double chemical reaction takes place as for neutral salt decomposition, plus the chemical reaction caused by the excess alkalinity. Very excessive alkalinity of the mouth, same as excess acidity, seldom remains more than a few hours or days. The renewal of normal salivary conditions soon takes place. Neutral salt-alkaline decay is indicated by the colors for this class, depending most upon the excess alkalinity. Strong alkalinity will cause the rot



to have a dark ash or gray-brown color. This class of decay may always be known by the color, disintegration, physical and chemical conditions aforementioned.

Oral Lactic Acid Fermentations.—Lactic acid does not ferment or develop in the mouth in sufficient strength to cause dental caries. Sufficient quantities of food of any or all kinds do not remain between the teeth, around them, or in their cavities during a sufficient time to produce lactic acid of sufficient strength to be destructive to tooth bone. It is doubtful if the quantity of animal and vegetable food equal in weight to more than  $\frac{1}{8}$  or  $\frac{1}{4}$  ounce would remain in the interstices of the teeth, their cavities, or around them. A few grains, say 20 or 30, would be nearer correct quantity than  $\frac{1}{8}$  or  $\frac{1}{4}$  ounce. Furthermore, most of these small quantities of food would generally remain only between masticatory processes. The remnant of last meal would be largely removed by chewing friction of the next. In such cases it is certain that the quantity of food matter which would remain with the teeth during several meals would be reduced to a few grains.

Full digestive fermentation necessary to produce lactic acid requires from 3 to 6 days. The quantity of food, sugar, alkaline substances and carbohydrates necessary to produce lactic fermentation, which would produce lactic acid in the mouth, could not possibly exceed 20 grains, remaining in the mouth during a period of three days. The lactic acid fermentation would produce less than one thirty-fifth of a grain of lactic acid. This quantity of acid forming in all parts of the mouth and liable to be distributed during the masticatory processes of several days, could not possibly decompose tooth structure, the hardest substance in the body. Even the lactic acid development in whey of milk requires 48 to 60 hours at 76 to 100 degrees to complete lactic acid fermentation. Human saliva flows into and through the mouth in quantity, one quart or more each 24 hours. Its general alkalinity would neutralize many times as much lactic acid as forms by lactic acid fermentation.

No Systemic Acid or Alkaline Caries.—Saliva is extracted from the blood by the parotid, sub-maxillary and sub-lingual glands, and carried by their ducts into the mouth. If the blood contained either lactic acid, or the potassium element in sufficient quantities, that when excreted into the mouth the saliva would contain this acid or any acid or alkali in sufficient quantity and strength as to decompose the

teeth, then the decay of the teeth would be by systemic process, for the reason that said acid and alkali are extracted from the systemic blood. Either acid or alkaline decay under such conditions would be systemic.

Systemic blood could not contain lactic acid in sufficient strength to make its excretive flow through the glands aforementioned to dissolve the lime salts of the teeth. A tooth placed in one-half of  $\frac{1}{2}$  per cent lactic acid, aqueous solution, long remains without perceptible lactic acid decomposition. In order to decompose the teeth, the salivary secretions must contain 1 per cent of lactic acid, considering the salivary dilutions which take place in the mouth.

The quantity of human blood in the system averages about  $2\frac{3}{8}$  gallons, or about 300 fluid ounces. Three per cent of 300 ounces of blood is nine ounces. The chemist and physiologist knows that nine ounces of lactic acid free and uncombined could not remain in the system a single hour and the patient live. Make the blood 1 per cent lactic acid, which would mean 3 ounces. Three ounces of lactic acid in the systemic blood would cause fatal constitutional disturbances at once. The dose of lactic acid is 20 minims. Potassium hydrox is such a powerful agent that physicians never attempt to administer it, even in smallest doses. It burns with high heat flame, floating on blood, saliva, or water, because of its great affinity for their oxygen. Therefore it can clearly be seen in regard to the free acidity or alkalinity, that the blood could not contain either lactic acid or potassium hydrox, nor any acid or alkali, in sufficient strength, that when poured from it through the glands into the mouth, to rot the teeth. Acid or alkali free and uncombined in sufficient strength in the blood to cause the saliva to rot the teeth would mean systemic death.

Phosphoric and carbonic acids, and potassium combined as potassium phosphate, or carbonate as neutral salts, may be in the blood in comparatively large percentages. Potassium salts are necessary and harmless agents in the human economy, but either the acid or alkali of which they are composed, alone, free and uncombined in the blood, in quantities aforementioned, would be destructive to all animal life.

Neutral salt, neutral salt-acid and neutral salt-alkaline decays are always systemic.

Neutral salt agencies do not, in sufficient strength to rot the teeth, develop or ferment in the mouth. They come from the systemic

blood and pour into the mouth through the salivary glands and ducts. Because they are derived from the blood, any decay which they may cause is systemic. If the decay should result from constituents which develop and ferment in the mouth, the decay would be local.

*(To be continued.)*

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The next paper will give several reasons, based on sound, constructive logic, why Black & Miller's Microorganic theories of decay are microbic errors, and that there can be no such agency as lactic acid tooth decomposition in the oral cavity.

## THE REASONS WHY OUR AMALGAM FILLINGS ARE FAILURES.

BY GEORGE B. HARRIS, B. S., D. D. S.

I have taken for granted that our amalgam fillings are failures. Not all of them, but 95 per cent of them are. We insert an amalgam filling to prevent further decay, and unless the filling does this it is a failure. Now 95 per cent of the amalgam fillings inserted do not prevent further decay, hence they must be failures.

The better grades of our alloys are made along scientific lines. They are far superior to the older alloys for this reason. There is no fixed or definite formula by which they are made. Each new supply of ingredients varies somewhat in composition, so that in order to produce a uniform alloy each new supply of ingredients must be tested and mixed in a little different proportions to produce the same alloy. These alloys are tested to give an expansion of about 1-12,000 of an inch. Now with these superior alloys we expect to insert a superior amalgam filling, but we do not. The fillings inserted before the days of the tested alloy were just as good as those inserted today. They were poor fillings, but they could not be worse than 95 per cent of the amalgam fillings inserted today. Poor fillings are certainly better than no fillings, but 95 per cent of these fillings are not poor but *worthless* fillings.

Nor do we have to look far or hunt long to find a cause. Improper cavity preparation plays the most important part. Improper cavity preparation, if we wish to make ourselves believe that the correct preparation is not determined! Otherwise we must accept carelessness as a substitute for improper cavity preparation, backed by a money consideration only. I believe it to be carelessness, without interest in the welfare of the patient or pride in the operation. One of the prime factors in failure of amalgam fillings is the failure to remove *all* of the decayed tooth structure. The per cent of amalgam fillings inserted upon decayed tooth structure I will not attempt to state. Of the hundreds of amalgam fillings I have removed during my investigations along these lines from extracted teeth furnished me by my professional friends, and also fillings removed by myself in the mouth, I have yet to find *one* which did not show decay under the

filling. This is due to incomplete excavation. The causes for incomplete excavation are many. Our efforts to avoid pain is among the principal ones. The old maxim, however, should be remembered in such cases: "They'll forget the pain, but remember the filling." Permanency of a man's work is his best asset, and if he cannot obtain this end without inflicting pain, the infliction of pain is justifiable. No matter how good the alloy may be, incomplete excavation makes the filling worthless. This includes not only the decay within the cavity, but the white area surrounding it, and also any brown discoloration that may be present. Failure to remove these is leaving the means by which the ends sought after are defeated. "Extension for Prevention" can be carried too far, but there is a far greater danger of its not being carried far enough.

The overhanging enamel borders so often permitted to remain do their share in defeating our efforts. These might far better have been removed in the first place rather than be permitted to remain to break away at a later date and permit the tooth to continue to decay.

Now supposing we have a cavity correctly prepared and all decayed structure removed. Still a filling inserted would not prevent further decay unless the cavity was sterilized. We must make the cavity as sterile as possible if we hope for a successful operation to be the results of our labors. The most important step is to have a perfectly dry cavity. This cannot be brought about without using the rubber dam. It is just as important to have a dry cavity for an amalgam filling as for a gold, and the failure to have a perfectly dry cavity is the way I explain my failure to discover one single instance where decay was not present under the amalgam fillings which I removed from the extracted teeth mentioned above.

The use of a matrix in inserting amalgam fillings in all mesial and distal cavities is also of very great importance. We do not and cannot restore normal conditions in these instances unless we separate the teeth and use the matrix. Our failure to restore a tooth to its normal condition will defeat our efforts.

In closing this article I would like to say that if there is any member of the profession who does not believe as I do on any point or view expressed herewith, there is ample space in this journal for him to so express himself, and if there are any I trust I may discover his exceptions in the following issue of this journal.

IMPORTANCE OF ORAL HYGIENE.

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BY W. G. EBERSOLE, M. D., D. D. S., CLEVELAND, OHIO.

Chairman Oral Hygiene Committee of the National Dental Association.

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We are told that in the beginning God created man in his own image, therefore perfect, after which he rested. Some wag has said that after the Lord rested he made woman and since then neither God, man, nor the devil has rested. Personally I disagree with this wag's statement. I have not found it to be true.

A few years ago micro-organic life was discovered. It was a great discovery and a valuable one; but do you know that following that discovery the medical and dental profession have been so busy chasing microbes and parasites that Humanity has not been given a moment's rest since that time.

So persistent have these professions been in their bug hunting, and so great the hue and cry created in the chase, that mankind, as a whole is kept busy not only in jumping sideways, but jumping up and down as well, trying to avoid coming into contact with disease producing germs.

If you do not believe this statement, just go down town and stand on a busy corner and cry "Microbes!" "Look out for the Microbes!" and watch the people jump.

If you want to see them scatter, only say "Look out for the pneumonia germ or the typhoid germ"; but, to bring it down to this audience, suppose that I was to say to you that the large meeting held in this hall this afternoon was composed wholly of tubercular patients in all the various stages of the disease. One-half of this audience would leave at once, and if I was to follow this declaration with the statement that, unfortunately, this morning Dr. Blank, a prominent bacteriologist, had dropped a tube containing a very virulent culture of the pneumococcus (the pneumonia producing germ), and that these dread germs were now floating in the air throughout this room, the other half of the audience would beat double quick time for the exits. Why, I believe I would leave, myself, under these circumstances, and I have always thought myself immune.

Methinks I hear some one ask, "Do you not intend to cry mi-

crobes or bacteria?" Yes, I must confess that I do, but my cry will be in an entirely different direction from that uttered by most men in discussing the subject since micro-organic life was discovered. Most of the thought and attention has been directed to destroying these organisms after their birth; but my cry is to be for the destruction of their breeding places.

But, says some one, "Is not man the principal breeding place for pathogenic bacteria, and would you not have to destroy man in order to destroy these breeding places?"

To the first part of that question I will answer "yes, man is the principal breeding place for pathogenic bacteria"; but, to the last half I must answer "no," for it is not necessary to destroy man in order to destroy the breeding ground.

In the perfect man, in man as God created him, in man who lives and cares for his body as God intended he should, there is no breeding place for pathogenic or disease-producing germs. It is only when man falls from his high pinnacle of perfection, it is only when man neglects to properly use and care for his physical being that his body becomes susceptible to the activity of disease-producing germs.

But we are told that we cannot expect to produce perfect man. No, we do not expect it; but we can so nearly approach perfection in mankind that diseases from micro-organic life will have little or no influence.

We expected to have on this platform tonight a man who has done more to show the world what can be done in the way of approaching perfection, from a physical standpoint, than any other man living. I refer to Mr. Horace Fletcher.

A man who, at forty, was practically a physical wreck, with no seeming chance for ever gaining perfect health, and who has so far developed his physical being at the age of sixty that he is not only able to stand the severe tests of strength, but to practically double the records of the best athletes in the leading colleges of the country.

And what has been the principal secret of this development? It has been the proper use and care of the oral cavity—the first three inches of the alimentary canal—as he puts it—the mouth, the most important organ in our physical being.

The mouth, the least considered, the most neglected and ill-kept organ of the body. The mouth, that organ which can make such a

change in the human being as that attained by Mr. Fletcher, the care and use of which no man has developed more fully than he.

Former President Theodore Roosevelt stated that "the health of our citizens is the greatest asset of the Nation," and in recognition of this fact, President Taft has called for the formation of a National Health Bureau.

We have said that the discovery of micro-organic life and the turning of the attention of professional men in this direction has been of great value. As proof of this we will say that the death rate by typhoid fever, a communicable disease, the conquering of which is largely a question of sanitation, has been reduced 50 per cent in the United States since 1880, and still 22,000 die annually from this malady.

The diphtheria rate has been reduced 80 per cent, but still there are 20,000 lives lost annually from this malady.

Most of this reduction has resulted from the knowledge obtained in the study of bacteriology and sanitation, with little or no thought directed toward the oral cavity, the greatest harbinger of pathogenic micro-organic life and the portal through which most of these germs enter the human system.

But, notwithstanding these statistics, we are told that every hour seventy-two Americans die from preventable diseases. Each day lives are needlessly destroyed which equal a population of a town of almost 2,000. Every year the sacrifice of life, through ignorance and neglect, equals the population of a city larger than Baltimore or St. Louis.

My authority for this statement is Professor Irving Fisher, of Yale University, and is taken from his recent report to the National Conservation Commission, of which he is a member.

Just think of a great city, larger than Cleveland, being wiped out in a single year by diseases which may and can be prevented, and it is to help prevent such a condition as this that we have asked you to meet with us to discuss the care and use of that organ which will wield the greatest influence in correcting these faulty conditions.

The profession, of which I have the honor to be a member, has proven that the neglected oral cavity, the ill-kept mouth, is one of the best breeding places for pathogenic micro-organic life or disease producing germs, and the Association, which it is my privilege to represent upon this occasion, with the co-operation of the Cleveland



Dental Society, has obtained proof that 97 per cent of the children in our public schools have diseased or faulty mouths.

If 97 per cent of our little ones have mouths that are diseased, what must be the condition of the adult population of this country!

Just think of our boys and girls, our babies, our loved ones—no matter how much care and attention we have given them at home, being placed in an institution where it has been shown beyond any question that practically 97 per cent of the inmates are abnormal or diseased.

What a “hue and cry” would be raised if parents were to deliberately send their children into a house containing patients ill with scarlet fever, or a building filled with patients affected with measles; or, imagine, if you will, parents sending their little ones to live for a certain number of hours each day in an institution containing patients who were ill with pneumonia, typhoid fever or tuberculosis.

What a furore would be made and how active the Health Authorities would become under these circumstances, and yet, think of the State and Nation requiring these same parents to send their children for five hours a day to be confined in an institution wherein 97 per cent of the inmates are found to be diseased and the mouths containing the micro-organisms which produce pneumonia, and the micro-organisms which produce tuberculosis, together with innumerable other pathogenic organisms.

Thus far I have spoken of the mouth as a whole. Just a word about the influence of the teeth upon disease. Dr. Henry Upson, of this city, has proven that many cases of insanity are due to the faulty conditions of the teeth. It required considerable experimenting and much time to be able to obtain definite proof of this fact, and yet every up-to-date dentist knew this and has known it for years.

Why, every woman in this audience who has had her husband come home with a toothache has realized the truth of this statement. If you want to see a first-class case of insanity, take a strong man, suffering with a violent toothache; the stronger the man and the more active the ache, the more interesting the case.

We may laugh and jest if we will. Physicians and dentists have questioned many of Dr. Upson's statements, and while I do not endorse all of them, I want to say to you that Dr. Upson states facts when he says that the faulty condition of the teeth *may* produce insanity.

I want to go a step farther and state that faulty teeth exert an equally detrimental influence on every other organ of the body. Thousands of so-called cases of Stomach, Intestinal, Liver, Kidney and Heart troubles are due to the faulty use and care of the mouth and teeth; and all the medicine and *medical treatment in Christendom cannot cure them.*

*They must use and care for their mouths and teeth properly if they expect to recover their good health.*

Why, do you know that the great Match Manufacturing Trust has employed a dentist for years, whose duty it is to visit the factories so many times a year and examine the employes? If faulty conditions of the mouth or teeth are found, the employe is instructed to have this condition corrected, and if it is not done within a reasonable time the individual is dismissed from the service.

Before this system was established many people not only lost their teeth, but in a number of cases workmen lost their jaws as well, and even death ensued *from poison which passed in through decayed teeth.*

Since the establishment of this system of examination and compulsory care and treatment, *phosphorus necrosis*, or death of the bone, has been practically unknown to match workers.

A fact which I wish to particularly impress upon this audience is that *caries, or decay of the teeth, is the most prevalent disease of civilization.*

Every father and mother knows how readily the germs of scarlet fever or diphtheria are communicated from child to child, and I want to say to this intelligent audience *that the micro-organisms which produce decay of the teeth are just as readily transferable from child to child and from adult to adult as other germs, and are wielding greater havoc in the human family than all the other disease germs put together;* and it is for the purpose of proving this very fact to the public at large that we are inaugurating this great educational campaign.

*There are thousands of invalids who are such because of faulty oral conditions.*

Some one may ask the question: "If these things exist, why have we not known it before?"

My only answer to a query of that kind is that it is because both the medical and dental professions have failed to perform their full duty toward mankind.

Some of the more progressive members of the dental profession have made numerous attempts to have the various State Legislatures pass laws granting the Boards of Education throughout the country the power to permit or establish examinations and lectures from an oral hygiene standpoint, and to install clinics to take care of the indigent poor.

The facts which have been presented to you tonight have been furnished our lawmakers, but almost without a single exception a deaf ear has been turned to this plea.

The excuse has been that other matters of far greater importance demanded the attention of the various Legislatures. *Just think of such a condition!* The members of our Legislatures too *busy* to look after the health and comfort of our boys and girls; and think, too, they control the laws which compel our children to attend these schools wherein are found such unhealthy conditions.

The great trouble has been that there was no definite proof of these statements at the command of the profession, and while these facts are known, and have been known for years, to the profession, they lacked convincing proof and the lawmakers have not been inclined to accept their statements.

In other words, it is an absolute impossibility to secure laws to handle and control the conditions which confront us *without first educating the public to their needs*, and through them reach the "*Powers That Be.*"

The public and the lawmakers of this country must be made to realize conditions as they exist.

They must see that with which we have to contend; and it is for this purpose that the present educational campaign has been undertaken.

This meeting tonight and other meetings of a similar nature which will be held throughout the United States, are cries for help on the part of the profession in seeking to prevent this great disease of the people from destroying the health, vigor and happiness of the human family.

*Without the aid of the public at large in combating this common foe, preventable diseases will continue to sap the life and strength of our nation.*

Our cry for help is not alone to care for conditions which

actually exist; but, *the great appeal in which we raise our voices at the present time is for aid in the prevention of this condition.*

Methinks I hear some one ask "Why it is that this condition exists?" My friend, it is a long story, and one upon which I might talk by the hour. Briefly stated, it is our method of living, the kind of food we eat. I beg pardon, did I say eat? *I should have said "bolt," for the American people are a race of food bolters. We do not eat; we have lost the art. We simply shovel the food into our stomachs* as a fireman shovels coal into the furnace, and give it about as much thought and attention while it passes through the mouth.

Thus far, I have spoken of the care and use of the mouth. I should say the use and care.

The great mission before us today is to teach the correct USE of the mouth. With Humanity using the mouth as God intended it should be used, care and treatment would sink into comparative insignificance and many of the ills and ails of the public will be practically forgotten.

Today we have almost forgotten the importance the mouth bears to life, and as a result we are reaping the reward in the loss of health, strength and beauty.

The fact is that the condition exists and is gradually growing worse in spite of all that has been done by both the dental and the medical professions.

The question before us tonight is not so much what causes it as how to prevent it.

True, we are interested in the cause in so far as it aids us in preventing this condition.

It is to combat this condition that we are waging our war.

Our campaign embraces the three great educational mediums of the American Republic; the public school, the public press, and the public platform.

In the public schools we are installing a system of examination, which brings the attention of every parent to the faulty condition of their children's mouths.

This work is being done in the city of Cleveland by members of the Cleveland Dental Society. Lectures are to be given in the school buildings by a corps of twenty men of the Cleveland Dental Society.

explaining to parents, teachers and pupils how to overcome the faulty conditions and to prevent recurrence.

Six clinics have been established, four in connection with the public schools and two in connection with the parochial schools, to be used in educating the public at large as to the value of proper oral conditions.

Arrangements have been made with the Educational Department of the Public Schools for a complete record of the child's working efficiency, both before and after treatment.

The newspapers of the country have been brought into the fold and made aware of the appalling conditions and have united their forces with the profession to secure the correction of same.

Such meetings as we are holding tonight will be held all over the country in order that the message may be brought to humanity as a whole.

Every father, mother and teacher must unite with these great forces to secure conditions which will prove a protection to our boys and girls, and not a menace.

Nothing can possibly be of more value to a nation than the lives of those who compose it. To use every possible means to prevent destruction of these lives is not only a proper function of the Government, but a most solemn duty of Government.

But, in the great rush to aid or control great corporations, the Government has almost forgotten its duty to the masses, and it is up to the people to teach it that there is something of greater importance than dollars and their control. Government must be made to perform its full duty.

Our law-makers have recognized this duty only to a limited extent. They have provided health boards or bureaus—local and national—to assist in protecting human life against one class of preventable diseases, and that is those that may be communicated; but, as already indicated, the deaths that have been prevented are but a fraction of the enormous number occurring annually from some of these same communicable diseases.

We are told that public health measures and the general war against disease are supposed to be more effectively and actively prosecuted in Greater New York than in any other American city.

The cost of governing that city last year was \$148,447,000 and all that was spent in the health department was 1 1/16 per cent of that amount; and yet during that year the city lost 33,200 lives from ordinary preventable diseases.

We are also told that in 148 cities of the United States, during the year of 1907, the ratio of health department expense to the total Government expense was 1 8/10 per cent. The ratio expended for police and fire departments of these same cities was 23 per cent. From this may be obtained an idea of the slight importance placed upon the conservation of human life by the government of our large cities.

In Greater New York \$8,000,000 were spent on the fire department, and the fire loss was \$9,400,000. For the public health department \$2,418,499 were spent, while the value of life lost from preventable diseases, using Professor Fisher's estimate of \$1,700 as the producing value, was \$56,550,000.

Just think of spending eight millions of dollars to protect property against fire, and only spending two and one-half million dollars to protect the lives of human beings when the loss from preventable diseases alone has been estimated at fifty-six and one-half million dollars. Is it not high time that such men as former President Roosevelt, President Taft, and others call our attention to the necessity of greater activity in this direction?

No department should show greater activity and energy than the health department, which should be organized on scientific lines, presided over by broad-minded scientific men, and provided with a publicity bureau, and a large and efficient corps of medical and dental examiners and inspectors; and their work should be conducted on a scale consistent with the amount of life waste they are to combat.

But, life waste in the United States amounts to a billion and a half annually in dollars alone; the estimated producing value of the lives unnecessarily destroyed.

Figuring a population of 80,000,000 inhabitants, this means a loss annually of \$18.75 for every man, woman and child in the land. Almost two-thirds as much as it costs per year to educate a child in our public schools.

**MANDIBULAR ACTION AND PRESSURE—ITS INFLUENCE ON THE ENTIRE SYSTEM.**

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BY B. J. CIGRAND, M. S., D. D. S., CHICAGO, ILL.

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The title of this paper might induce some few to the conclusion that the subject more properly belonged to a medical journal, hence should be pronounced foreign to dental consideration. The fact that the general system is under consideration in the practice of dentistry should not lead to the inference that as practitioners we should forego the privilege or duty of giving the matter thought, nor should it foster the idea that we are usurping beyond dental limitations. As time goes on it becomes more apparent that our professional duties indicate that we concern ourselves more diligently with every phase of human disorder, induced or provoked by any dental disturbance. This may seem a rather broad definition of our calling, yet our service is limited by legal rather than by physiological laws.

Our profession would this day and age receive greater consideration could we impress the public with the fact that our services are truly important and that organic and functional disorders throughout the human system can be directly traced to abnormal or disorganized oral conditions. I know of no method, policy, plan or purpose which would engender public respect more than one calculated to educate the masses to a realization of the broad and far-reaching influence our services may have upon the general health of the person.

This paper is prompted by the cordial reception recently extended when I read before the Chicago Medical Society my paper entitled, "Systemic Health—Its Dependence on Dental Order." In my paper to the readers I hope to emphasize features of the subject as were merely touched upon in the former article.

Possibly the most interesting theme of all life is the subject of cell physiology; and the possibilities which this *kentness* possesses is far beyond the ability of human mind to describe. If we thoroughly understood the single cell, all living bodies with their wonderful complexities would soon resolve themselves into plain and easily understood objects. The recent experiments of Prof. Robert Hamilton tend to prove the existence, in every highly organized development, of two lives; the one a life resident in every atom of the structure;

the other the unity of all these atomic lives—a life for which we have failed to find an expression. Notwithstanding that the atomic lives are subordinated by the grand or central life, the latter is dependent on the atomic energy, and a co-existence is established which science has yet to solve.

Just as each atom contributes to the entirety, so every fibre contributes to the organ, and in turn every organ donates to the perfected whole. And in the same ratio the entire organism depends on the health of each part.

The mind exercises a powerful control over all the atomic life, and the students of cell physiology, as well as the pupil of nature, need not go beyond their own bodies for a laboratorial or ocular demonstration.

One hears and reads much these times of muscular and athletic development induced by exercise and mental influence. This cannot be known as a new idea. The basic thought of this system can be found in a sentence by Darwin in his "Descent of Man," page 30, where he speaks of redeveloping organs or nerve or muscular fibres, as follows: "I have seen one man who could draw the whole ear forward; other men can draw it upward; another who could draw it backward—it is probable that most of us, by often touching our ears and thus directing our attention toward them, could recover some power of movement by repeated trials."

That the exercise of the jaws and mental direction changes the face I firmly believe. I have observed in patients who had suffered the loss of most of the teeth on one side of the mouth that the cheek was thinner and more flabby. I concluded that this was entirely caused by the loss of the teeth, but I have come to believe that since the patient cannot masticate where there are no teeth, the entire exercise is conducted on the side containing teeth. The additional work placed upon this side of the mouth develops the salivary glands doubly, while on the opposite atrophy practically sets in, causing absorption and thinness of cheek.

Again, nature has so arranged the salivary system that the glands will only respond on that side of the mouth where actual mastication is in progress, again proving that the glands excrete only under pressure. The sucking or mere swallowing, as is done in eating soup and soft foods, does not beget a free or full flow; movement of the



jaw is not sufficient; it requires pressure. The jaws must be forcefully brought into antagonism and thus produce an effect on these glands.

Besides the action of the jaw, the mind should exert its influence upon both jaw and glands. The effect of mind over body is well and most easily demonstrated regarding oral secretions and flow of buccal mucus.

Again, we overlook the necessity of jaw movement in the process of digestion. Taking of foods, which are prepared so-called, require little mastication, cannot guard against dyspepsia and kindred stomach disorders. The food must be left in the mouth sufficiently long to be saturated with saliva, and to assure its liberal flow the jaw must be set in motion. Oatmeal and the various breakfast foods do not require this, and the sucking or mere process of deglutition does not bring forth the saliva, and hence the proper action of the saliva is omitted, and this will have its ill effects on the use and force of the food.

We should choose such foods as will stimulate the flow of saliva and develop the glands and strengthen the secretions. Select foods which exercise the teeth. This stimulates the circulation in the periodontal membrane and induces a quickened circulation in the tissues of the gingiva and possibly wards against pyorrhea and other forms of diseases of waste.

The mere moving of the jaw, as in speaking, does not stimulate the glands sufficiently. Experiments which I have made have led me to conclude that the parotid and submaxillary glands are provoked into action by tension of the masseter muscle. That these muscles, during their vigorous activity, stimulate these glands on the parts or subordinaries. Every fibre in animal life is subject to development or decadence. The progression or retrogression is dormant or alive according to its use or importance. In animal life activity and development are synonymous terms, while disuse and waste are similar words.

In the animal kingdom the forces of destruction are constantly at work, and the forces of renovation and repair are equally active, but they do not remain perfectly matched, for at times the energy of the mind or body may be so great as to overtax the residual forces and the physical being becomes exhausted, and if this same activity

is continued the body soon suffers, indicated by loss of weight and lack of mental vigor; and again we may have the forces of repair, the ruling agent, and the mind is clear, the body strong and the entire nervous system alert and vitalized. This constant war of forces is largely supplied by the food we eat and the mental energy supplied. A sluggish person, slow of movement and of thought as well, does not destroy the cellular life as rapidly as one who is active and industrious—but the latter has the advantage of living under the influence of new and quickened vitality, since his energy wastes the elements and eliminates this waste product while the indolent harbors this poisonous matter because of the lack of molecular and fibrous exercise. Every action, be it mental or physical, necessitates destruction; and the tissue or part which has been affected must of necessity be restored or the waste would be greater than the repair, which would mean early decay and death. A wise arrangement in nature provides for this loss, and rebuilds the broken-down tissues of the body continually. By this process of animal restoration, so far as weight is concerned, the body might be renewed several times in a week; but the pounds of food we eat are not all nutriment to the human frame. A considerable portion of that which we eat is innutritious, and though useful in various processes, is not destined to repair the losses of the general system. To meet these constant chemical changes two materials are essential, food and air; and during the first half of our lives the repair somewhat exceeds the waste and our beings grow larger, stronger and heavier; while in the latter portion of life the opposite force seems to govern our destinies.

Nutrition and repair have come to mean the same, and both are symbols of life. The rapidity with which these changes are carried on is far greater than is usually supposed. Paley, in his *Natural Theology*, claims that the entire living organism is renewed in seven years, but recent investigation has cast aside the mystical figure seven and has substituted in its place the word "time."

Nature despises disuse. She has a standing resolution which reads: "The idle and unused shall be cast off," and this applies to the teeth, which, allow me to say, are no exception to this edict. If you were to have your right hand bound close to your chest, and it were to remain so for a period of one year, you would not be able to control it upon emancipation. Use and development have come to mean

the same, and nature furnishes an example in the sightless fish at the Mammoth Cave, Kentucky. Nature says, why have these eyes when they are not used? Atrophy in nature, as in political life, means waste and death.

As in the whale the teeth are imbedded or encased in the jaw and never erupt. The whale having no use for them, nature does not beget the teeth.

All life testifies to the primordial law, that what is not employed shall be gradually destroyed.

The general public in the cities have been inoculated by the virus known as haste, hustle and hurry. Their meals are eaten in five minutes, and only substances requiring little chewing are chosen from the bill of fare, and we have learned long since that the teeth need organic exercise.

Hasty eating brings with it deranged alimentary, and this always means an acid bath for the teeth, and this means eventual destruction. If the American people are suffering from a general disease, it is indigestion superinduced by insufficient mastication of foods. Hasty eating and modern cooking has eliminated more good teeth than accident or old age. While visiting England I was impressed with the good sense of these foreign people, in that they observe the rules of governing appetite better than we who produce our love for the pleasure of life. It is quite perplexing to the American to be obliged to spend so much time at the prandial board, but the English custom of "loitering at the meal" is indeed an expression of national wisdom. Washington Irving, in his sketch book, clearly portrays the English love for a "good, substantial dinner," and throughout the continent as well the folk seem to take the full hour for dinner. The old saying, "after dinner sleep awhile and after supper walk a mile" has grown obsolete and belongs to an age when people worked to live, while now we live to work.

Mental exertions exert a control over saliva, sometimes diminishing it, as in moments of great anxiety. Its flow is often completely stopped by fear, while suggestion increases it and not infrequently induces an abundance of the watery fluid.

The saliva has many functions; it is a necessary intermedium in the sense of taste; substances to be sapid must be more or less soluble in this juice—if insoluble they are tasteless. It moistens the in-

terior of the mouth, aiding the art of speech. But chiefly it promotes the process of digestion, and in this latter fact we should be more concerned since its flow is, I believe, controlled by the activity of the jaw. I do not mean by mere jaw movement, but jaw action. Nature requires that the food shall be crushed and pulverized by the teeth and softened and chemically changed and prepared by the saliva, and when these two processes are accomplished the food is ready for the stomach. The present prepared foods do not beget jaw action, hence I contend do not receive the proper amount of parotid saliva, and the foods, lacking this pre-stomachic treatment, must of necessity lack in the blood producing elements. The mischief of this poorly prepared morsel may be one of the attributes of the prevailing ailments of dyspepsia, and may also be conducive to the ravaging increase of consumption. Tuberculosis makes great headway in any system that is exhausted; in any person whose vitality is low; in any individual whose energy is lessened through impoverishment of blood. The action of the jaw being omitted, the flow of parotid saliva is scant, the food morsel improperly prepared, digestion disturbed, the blood impoverished, and hence with lack of organic and systemic energy tuberculosis, pyorrhea and all consuming diseases readily progress. All this destruction of human life has been aided, not induced, by disregard of the cardinal principles of digestion. By our present methods of hasty eating, giving neither thought nor time to the process of manducation and mastication, the human or civilized species is disregarding nature's greatest and most divine requirement—histogenetic digestion.

A case recently brought to my attention may be of interest in this direction. A young lady patient who sustained an injury to the tempro-mandibular articulation, resulting in positive immobility of the jaw, and being obliged to exist on liquid food, gave evidence of the immediate effect of jaw and dental exercise in that her teeth loosened and the parotid saliva practically ceased flowing, her health soon disappearing.

Men versed in the art and science of stock raising will bear testimony that the cattle as well as swine which are denied opportunities of vigorous jaw exercise soon loose the teeth and become diseased.

# EUROPEAN PROGRESS.

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## THE TREATMENT OF TRIGEMINAL NEURALGIA BY INJECTIONS OF ALCOHOL.

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BY ALFRED W. CAMPBELL, M. D. (ÉDINBOURG) SYDNEY.

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(*The British Journal of Dental Science*, August 15, 1910.)

(*Continued from November.*)

*Instruments.*—A syringe suitable for these injections is readily found, and I can recommend a well-fitting all-metal antitoxin syringe of 5 cc. capacity. Proper needles, on the other hand, are difficult to secure, and I was obliged to send to Paris for my sets.

For the intrabuccal injections practised by Ostwalt, stout needles, about 1 mm. in external diameter, slightly bevelled at the point and about 8 cm. long, one of them bayonet-shaped, are required. The bayonet-shaped needle is designed to circumvent the projecting posterior surface of the superior maxilla in making an injection of the foramen rotundum. For this, and indeed for every deep injection, a stout needle is, in my opinion, necessary, because resisting muscles have to be contended with, which may deflect the needle or prevent it from being urged along the desired course, and because there is risk of breaking the needle at the neck or joint, a disconcerting accident which overtook me when using an unsuitable needle in one of my early cases.

For the extrabuccal routes to the deep foramina and for peripheral injections also, Brissaud and Sicard recommend a set of three platinum needles, 4, 5 and 6 centimetres long respectively, also slightly bevelled at the point, but not so stout as those recommended by Ostwalt, only 7/10 mm. externally. These writers advocate the finer needle on the ground that there is less risk of injuring blood vessels and other structures along the line of penetration; but I have found, and I believe others share my experience, that there is practically no risk with the stouter needle, and as I have mentioned, there is no gainsaying the fact that rigidity of the needle facilitates guidance to deep-lying objects.

Others, including Schlosser and Stewart, employ a stout needle

enclosing a blunt-pointed stilet, and in practice make the preliminary puncture with the needle, and before further insertion advance the stilet. I have not used this instrument because I have obtained satisfaction from Ostwalt's needles.

I do not think, however, that it is both easy to guide and safe.

For injections at the periphery, an ordinary hypodermic syringe and needle meet requirements, with the exception of the injection at the inferior dental foramen in the ramus of the lower jaw, where, as will be mentioned, a special needle is called for.

*Preparation of the Patient.*—It is a moot-point whether or not a general anesthetic should be used. All Continental workers—and it is they who have taught us nearly all we know concerning this method—prefer to dispense with the anesthetic, but to this practice I am opposed, and I am glad to know that at any rate one British worker (Harris) shares this feeling. The administration of these injections gives intense pain, and though many sufferers from neuralgia claim tolerance, their conduct during the administration gives the impression that in reality they are abnormally sensitive, and, therefore, specially require an anesthetic. It is noteworthy, moreover, that many of the subjects are in the habit of relieving their paroxysms by inhalations of chloroform, and in consequence are readily anesthetised. And lastly, there is no doubt whatever that undisturbed by the screams and struggles of the patient, the needle can be passed with far greater ease and accuracy. Therefore, as the outcome of experience, I now prefer to use a general anesthetic, and in answer to the objection raised by some, that in abolishing pain, we lose the advantage of information from the patient, as to when the needle touches the nerve, I would reply that in the unconscious subject I have repeatedly received an equally useful and purely physiological signal, viz., a quiver of the muscles, a semblance of a paroxysm, at the moment of contact with the nerve. And even were this not so, I would say with Harris that familiarity with the anatomy of the parts renders such information superfluous.

The patient should always be in the prone position, and for intra-buccal injections a preliminary cleansing of the mouth is advisable; also an assistant can be of use in holding back the cheek with a retractor.

When a general anesthetic is not used, a small injection of cocaine or stovaine preliminary to extrabuccal procedures, and the application of a pad wet with one of the same solutions, to the mucous membrane, in intrabuccal procedures, serve to lessen the pain in introducing the needles.

It is scarcely necessary to advise the observance of aseptic precautions. Formerly it was my practice to boil the needles for five minutes immediately before use, but I now store them in absolute alcohol and so prevent rust formation within the bore. To find the needle choked just as the point is *in situ* is annoying, particularly if the patient is not anesthetised.

When making skin punctures preliminary sterilization with soap, lysol and alcohol should not be omitted, and on withdrawing the needle a collodion dressing may be needed, while at points where oedema or ecchymosis is likely to occur, the application of a cotton wool compress will be useful.

*Technique.*—I shall now describe and comment upon the different lines or routes which may be followed to the various nerves, and to prevent possible misconception, may state that it is not necessary in every case of trigeminal neuralgia to inject all three divisions of the nerve. The attack is confined to the division or divisions affected, or even to a branch, when the branch alone is the cause of the pain, as is sometimes the case. It should be known, also, that in every case of rebellious neuralgia relief is more certain of obtainment if the affected division or divisions be injected peripherally as well as centrally, and it is useful to remember that a peripheral injection is almost painless when done subsequently to a successful central injection.

1. *First or frontal division.*—As Ostwalt first demonstrated, the root of this division may be reached in the sphenoidal fissure, wherein it lies immediately above the outlet of the foramen rotundum. A needle of bayonet shape with the terminal portion not less than 5 centimetres long is required. The site of the puncture is within the mouth, in the upper fornix of the vestibule, immediately behind the alveolus of the wisdom tooth. After piercing the mucous membrane and submucous tissues, which are somewhat tough in this situation, the needle is pushed through or below the external pterygoid muscle, until the point touches the external pterygoid plate of the sphenoid

bone—a very important landmark. The point is then carefully directed upwards along the middle of this plate until the infratemporal surface of the great wing of the sphenoid bone arrests further progress. Inspection of a skull will show that in this situation the great wing of the external pterygoid plate of the sphenoid bone together form an angle or cornice, of which in making this and other deep injections, it is essential to have a clear and correct mental picture. The point of the needle is next urged forwards along the cornice just mentioned, until bone resistance in the upward direction is no longer felt. This will be at the meeting of the zygomatic and speno-maxillary fossæ. If the needle now be pushed up from 4 to 7 millimetres, the point will be at the outlet of the foramen rotundum, where the practised hand may feel the small arch of bone which bridges the foramen rotundum and separates it from the sphenoidal fissure. Having found this point, if the needle be pushed about 2 millimetres higher, the nerve will be struck. Twenty minims is the dose for injection, and this is best introduced slowly and with interruptions. Measurements I have made on a series of skulls show the distance from alveolar ridge to foramen rotundum to be about 4.8 centimetres in the female and about 5.2 centimetres in the male. I have now followed the route just described three times and have reached the nerve successfully on each occasion, but I think I have been fortunate, because of all deep injections, this is the most difficult, and for this reason it is one in which it is decidedly preferable to have the patient anesthetised.

Another way of reaching this nerve, but one of which I have had no experience on the living subject, is *via* the orbit. A long, straight needle is inserted at the outer margin of the orbit, immediately internal to the fronto-malar suture, and is passed horizontally backwards along the outer wall of the orbit to a depth of 3.5 or 4 centimetres, where the injection is made. Since the site of injection is 1 centimetre or more anterior to the sphenoidal fissure, risk of injury to the third, fourth and sixth nerves is removed, at the same time the chance of hitting the nerve exactly must be small, and the good results recorded must have been due to the effect of diffusion of the injected fluid. It seems obvious that if a general anesthetic be not used, the proceeding must be unpleasant for both patient and operator.

A successfully made injection made into any division or branch



of the trigeminal nerve will always be followed by anesthesia in the domain of the skin or mucous membrane or other tissue supplied by that division or branch, and in the case of the first division anesthesia may be expected in the eyeball, the conjunctiva of the upper eyelid, the skin of the forehead, of the scalp up to the vertex, and of the mesial part of the nose, and the mucous membrane of the upper part of the nasal cavity.

(*To be continued.*)

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### THE INFLUENCE OF CLIMATE ON DENTAL CARIES.

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BY A. S. UNDERWOOD, PROFESSOR OF DENTAL SURGERY, KING'S COLLEGE.

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(*The Dental Record*, London, October, 1910.)

The first step towards the prevention of dental caries must be the identification of the conditions that favor the disease. These conditions must necessarily be of a two-fold character: (1) Anything which tends to weaken the natural antibacterial defense of the tooth itself; (2) anything which tends to increase the power and activity of the invading bacterial army.

It appeared to me some time ago that a careful examination of an extended series of skulls of various races and various epochs might throw some light upon this inquiry. The immunity of certain races and the liability of others taken in conjunction with what is known of their diet, surroundings, and mode of life, might result in useful suggestions.

About two years ago I commenced a series of investigations (making careful notes) of the skulls in accessible collections, such as the Royal College of Surgeons and the Natural History Museum, and, without burdening you with number of figures, all of which will be published later, I propose to give you a summary of my results. I started with strong expectations of finding certain definite results, and, as is often the case, I did not find in the least what I expected.

In the hot belt of the earth, including India, Africa, and Southern China, bathing and washing are natural habits because of the heat, and rinsing the mouth after meals, and the use of sticks, tooth-powder, ashes, and salt for cleansing the mouth is almost universal

among the natives; while the food is largely rice, and no alcohol is used. In all of them caries is so rare that to all intents and purposes the natives may be regarded as immune. In the Arctic regions, the Esquimaux never wash or clean their mouths (Peary), eat seals, walrus, whale, reindeer, fish, and seafoal, and drink alcohol. A very large series of Esquimaux skulls show the practical immunity among the natives. In the temperate regions, among the Australian natives, there is the same immunity.

Clearly cleanliness or uncleanness by itself is not a sufficient explanation, and climate *per se* has nothing or little to do with the question. Immune teeth among natives are always worn down, and the rare cases of caries are always in cheek teeth.

As far as skulls throw a light on the question, I have no doubt that what is called civilization is attended by a rapid increase of caries.

I used to think that the talked-of increase in the prevalence of caries of late years really meant that nowadays it was more widely detected and reported, but this illusion is now dispelled. A series of English, Scottish, and Welsh skulls of 100 to 150 years old which I examined, I found, though not immune, fairly free from caries. Most of these were skulls of poor people, *post-mortem* and dissecting-room subjects, with the exception of a few wealthy murderers.

Among ancient civilization, I found an appreciable amount of caries among ancient Egyptians. Of ancient skulls, I have not finished my inquiry, and therefore have not seen so many specimens of Greek and Roman skulls, but caries was certainly not unknown among them.

In modern times people vary considerably in their liability. M. Magitot published in 1867 some very interesting investigations. He concluded that Caucasian races were specially liable; that mixed races were more liable than pure; that transplanted races were specially liable—I do not agree; that aborigines of America, Mexico, Peru, and Patagonia were immune; also that Australia, Madagascar, New Caledonia, and Javanese Island folk were specially immune.

No single cause explains this fact. Food has little to do with it. In Normandy (the worst district) and in Brittany (the best), the inhabitants eat and drink practically the same things.

Rivers also have no effect. The Seine and Garonne districts are

very bad, while the Rhine district is comparatively immune. Nor can seaside, elevation, climate, food or wealth be shown to have much to do with it when considered apart.

As far racial distribution, the Celts, small dark folk, have good teeth, while the Kimric races, large blonde folk, have bad teeth.

Poverty and wealth seem no explanation in Great Britain today. Town-reared and country-bred people are all equally liable (Welsh mountains and London streets).

#### CONCLUSIONS.

The mischief, as far as weakening the tooth defenses is concerned, is to a great extent done before the diet of the individual has passed beyond the milk stage.

Although horse, cow and goat milk contain much more lime than human milk, and although many artificial foods are ideal in the desirability of their constituents, there is no doubt they are not assimilated nearly so well as mother's milk; it is not what goes in the baby's mouth, but what goes into its blood that counts.

Maternal neglect, which is a product of high civilization, is an important factor. Even where the child is breast-fed, Sutherland states, that worry and anxiety render the milk unsuitable; and worry and anxiety, the strenuous life, high pressure, luxury, as much as want and distress, are evils attendant upon civilization.

Then there is the wholesale preservation of the physically unfit, which is also a practice pertaining to high civilizations.

My general conclusions are that the prevention of dental caries can best be attended by: (1) A return as far as possible to the simpler life; (2) A return as far as possible to maternal breast-feeding; (3) A universal habit from early childhood of cleansing and rinsing the mouth after every meal, and especially at bedtime.

## LYSOFORM IN DENTAL PRACTICE.

(*Revue Trimestrielle de Stomatologie*, Anvers, September, 1910.)

To preserve metal dental instruments, Dr. Caillon recommends the use of lysoform 2 per cent solution.

Lysoform is a clear fluid having a yellowish tint, resulting from the combination of soap and formol to which aromatic substances have been added; it contains about 20 per cent of formol. The addition of soap renders its use more desirable than when used pure. Its vapors are non-irritant and it does not coagulate albuminoid substances, finally, its alkaline reaction favors its action upon bacteria. It is soluble in water.

A 2 per cent solution of lysoform will sterilize instruments without oxidation, in fact instruments may be left to remain in this solution for months without undergoing any oxidation.

Dr. Caillon has been using lysoform for a number of years and is very well pleased with the results obtained by its use; he advises a 1 per cent solution for hand sterilization. He also recommends its use for the mouth-mirror as it prevents the formation of a cloud on the glass when used in the mouth. For this purpose glycerine may also be added to the solution.

It may also be used as a valuable antiseptic mouth-wash before and after operations. For this, the following solution is advisable: Lysoform, 1 part; glycerine, 2 parts; from 10 to 20 minims may be added to a glass of water.

The following is also used in the treatment of root-canals: Tri-kresol, 20 parts; lysoform, 10 parts; and glycerine, 5 parts.—*Providence Dentaire*, Dr. H. A.

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**THE TEN COMMANDMENTS OF HYGIENE WHICH HAVE BEEN POSTED IN ALL SWEDISH SCHOOLS.**

1. Fresh air night and day is a condition which is of the utmost importance to general health, and the best prophylaxis against pulmonary diseases.

2. Movement is life. Exercise daily outdoors, working and walking in the open air. It is the equiponderance of sedentary work.

3. Drink and eat moderately and plainly. He who prefers water, milk and fruits to alcohol, strengthens his health and increases his ability to perform his work and also becomes more prosperous.

4. The care of the skin: Harden the skin to cold by bathing daily in cold water and taking once a week a hot bath, this should be followed and practiced in every season. This will prevent you from contracting so many colds.

5. Garments should not be too warm nor too tight-fitting.

6. The homestead should have sun exposure, dry, roomy, clean, bright, pleasing and comfortable.

7. Cleanness in all things: air, food, water, clothing and linen, the home, all should be kept clean, the moral should also be kept in the same state of cleanness; it is the best preservative against cholera, typhoid, and all contagious diseases.

8. Steady work is the best preservative against diseases of the body and soul; it is the consolation of misfortunes and the happiness of life.

9. After work, rest and amusements are not found in night and loud feasts. Night-time was intended for sleep and rest. Festivals should be given at home and to the family. These may also be of a spiritual character.

10. The prime condition of good health is a life which is impregnated by work, noble deeds and honest joys. The desire of being a good family member, a good and serious worker in your position, a good citizen to your country, and to look upon life as the greatest of gifts.

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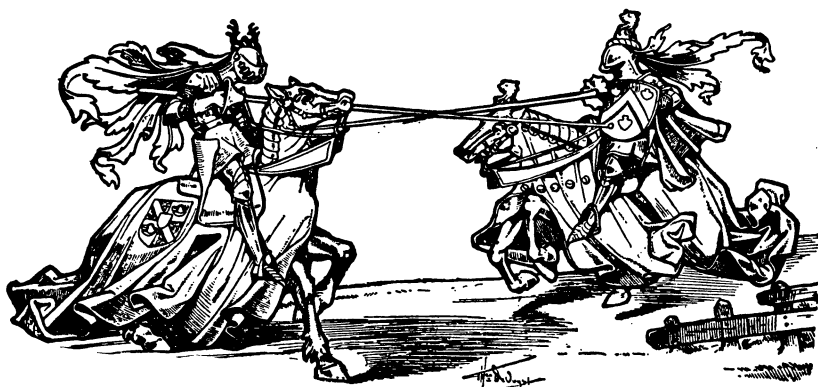
#### ECONOMY IN HYPODERMIC NEEDLES.

The *Medical Record* draws attention to the carelessness of members of the profession in throwing away hypodermic needles which have become occluded owing to the deposition of material derived from the fluid used for injecting.

All that is necessary to be done in order to restore the brightness of the external surface of such needles, as well as to cleanse them internally by dissolving out the precipitated material, is to boil them for a period of ten minutes in a solution of sodium bicarbonate.

The economy of such a procedure is obvious, for the sum total of hypodermic needles thrown away by practitioners must amount in the course of a year to many thousands, which in the view of the cost of such articles, must represent a large sum of money.

# PROFESSIONAL ARENA.



[In the space devoted to this department many of the so-called solved problems are to be opened for re-examination. Besides such other topics as are of greatest importance will be brought to the attention of the readers, and ablest talent will be engaged to discuss interesting dental themes.]

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## LACTIC ACID NOT SO BAD AFTER ALL.

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### Sour Milk and Longevity.

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Sour milk is the nearest approach to the much-sought "elixir of life," according to a statement made recently by Prof. Eli Metchnikoff of the Pasteur institute. Any one desiring to obtain a ripe old age is advised to emulate the Bulgarians, who consume large quantities of this cheap and easily obtained beverage, and who are noted for their longevity. The professor says:

"Sour milk contains a large bacillus remarkable for the great quantity of lactic acid it is capable of producing. This microbe does not exist normally in the human body, but can be introduced with great benefit to the health, as it preys on the hundreds of thousands of microbes which infest the large intestine. It has been noted that there is a great similarity between old age and disease. The study of certain diseases has proved that there is no difference between the mechanism of senile atrophy and that of atrophy caused by the microbe on the person. In fact, on the approach of old age, a veritable battle is waged in the innermost parts of the body."

Research is being prosecuted to discover some means of strengthening the vital elements of the body on the one hand, and to weaken the aggressive tendency of the harmful microbes on the other. When this has been attained, Prof. Metchnikoff hopes to be able to prolong life considerably beyond the present average.

An Atlanta physician who does not sign his name, sends the following taken from his writings in the *Georgian*, Atlanta, Georgia, relative to Miller's theory of decay:

DENTAL CARIES.

"Of all the tissues of the body, the dense, glistening enamel which coats the crowns of the teeth is the hardest and most impenetrable. No bone tissue approaches enamel in density. Yet, as most of us know to our sorrow, even the dental enamel is subject to decay; and, what is worse, decay which nature makes not the slightest effort to repair. When any other tissue of the body is destroyed by violence or disease, a more or less successful and wholly spontaneous process of repair sets in, but not so with destroyed enamel. Hence the profession of dentistry.

"But what is the cause of caries, or decay? This query introduces one of the puzzles of pathology. At one time caries was attributed to chemical action of acids eructated from the stomach and to acids occurring in the oral cavity. But this notion has been abandoned.

"Miller, of Germany, has probably given the causation of dental caries more study than anyone else. And he is probably correct in his belief that the tooth destruction is due to the activities of bacteria. But his view of the particular way in which the germs affect the teeth is not accepted by other recent investigators. He holds that the bacteria liberate lactic acid and that this acid attacks the enamel and underlying tooth substance. But a prominent investigator of Harvard university has isolated and studied the behavior of about 50 varieties of bacteria commonly found in decayed teeth, and he reports that only about one-fifth of them produce lactic acid, and that even they do not produce it stronger than one-half of one per cent—a solution far too weak to affect the teeth. It is curious to note in passing that while Miller in Germany is attributing the decay of one part of the body to lactic acid, Metchnikoff, in France, is attributing the long life of the whole organism to this same acid.

"All agree, however, that the accumulations of food particles between and around the teeth favor the development of bacteria and consequent decay. Consequently, whatever the *modus operandi* of the germs may be, all we have to do—all we can do, rather—is to keep food from between the teeth by the use of floss silk and tooth brush and to restrain bacteria by the aid of mild antiseptic mouth washes.

# JOURNALISTIC GEMS.

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## FLETCHERISM EXPLAINED BY FLETCHER.

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BY ROBERT H. ROHDE.

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(Dr. B. J. Cigrand, press agent for Fletcher lecture:—I am very grateful to you for having assisted me in getting this private interview with Mr. Fletcher. It will appear in *Inter-Ocean* of Sunday, November 6, and I contribute it to the AMERICAN DENTAL JOURNAL.—Robert H. Rohde, *Inter-Ocean* staff.)

“Chew each mouthful of food until the last trace of taste has gone from it, and the morsel almost swallows itself. Do this and you have started on the road to health, wealth and wisdom!”

Chicago, the latest of American cities to hear the doctrine of thorough mastication expounded by its founder, is in reality the birth-place of Fletcherism.

Some time along in the summer of 1898, when the streets of the loop district were thronged by war-frenzied citizens and something in the nature of a carnival was in progress, Horace Fletcher came to Chicago from New Orleans.

At that time the man who now is the personification of health, was a run-down business man, with plenty of money and about every ailment in the list.

Fletcher thought he was taking his last glimpse of the world. He had been told by physicians that he was on the threshold of death and that the chances were a hundred to one he would not survive the summer.

In Adams street a crowd was gathered. All Fletcher could see at first was a burly policeman. A closer inspection revealed that the man in blue was lecturing an urchin. The boy was about 8 years old, but he had the weazened face of an aged man.

The policeman had finished his admonitions when Fletcher came up. Creating an eddy in the crowd with his night stick, the policeman escorted the urchin to the gutter and then kicked him. The waif scuttled down the street.

“What’s the matter with that boy?” Fletcher asked.



He was told that the boy was a member of a band of pickpockets. Too young to be liable to any punishment more serious than a cuff, the urchin had helped himself to part of a haberdasher's stock in trade. He had been caught and turned over to the policeman. This was the beginning of Fletcherism.

How?

Fletcher looked about for the boy—wanted to follow him and see where and under what conditions he lived. He wanted to give the waif a chance in life. When Fletcher arose next morning it was to greet life with a different face. He canceled his plans to go to Europe. He decided to live and do something for mankind. That he might live for humanity, he cast about for a method to ward off the fate to which he had been abandoned by the best physicians in the country. It struck him that dieting might solve his problem, and he started the series of experiments that today have given Fletcherism to the world.

Fletcher was independently wealthy and money matters did not stand in his way. Up to the present time he has spent between \$50,000 and \$60,000 of his own fortune on his hobby, besides putting into it the money his lectures and books have yielded—the latter no inconsiderable sum.

The fundamental principles of Fletcherism are embodied in these "do's" and "don't's":

Chew your food until taste is gone.

Don't worry about regularity in meal hours.

Eat when you are hungry.

Never overeat—you won't need to if you Fletcherize.

Spend an hour at it when you do eat.

Don't talk while eating.

Above all, avoid serious discussion at the table.

Never allow anything to disturb your mental ease while the digestive organs are at work.

Don't drink liquor—don't smoke. Desire for alcohol and tobacco will vanish when you become a real Fletcherite.

Breathe deeply—give your lungs a chance for health.

Now, if you do all these things, Fletcher guarantees that you will be able to duplicate his accomplishments. Furthermore, he guarantees that you won't find it at all hard to carry out the system if you

give it a thorough trial in the beginning. This is what Fletcher can do without fatigue:

At the age of 61 he can get life insurance in any company in the world—and solicitors dog him around with tempting offers.

He can live a month, so far as food is concerned, on a \$5 bill.

He can get along with from four to five hours' sleep and feel better in the morning than about 99 per cent of the young athletes after eight hours' sleep.

He can stand all day, lecturing before a half dozen different audiences, without tiring himself.

He can lecture any given number of times without resorting to notes, memory serving for every bit of statistics and supplying without effort the material for an interesting, concise, extemporaneous address.

He can fast for seventeen days and then quell his hunger with a half ounce of beans.

Many interesting things about Fletcherism have never become public. For instance, John D. Rockefeller, the richest man in the world, is a Fletcherite and to Fletcherism, the billionaire says, he owes his present health.

Fletcher is frank. He'll tell the story of his life to anyone he thinks his experience will help.

"I guess you might have called me a 'prominent club man' before I started out to beat the doctors at their own game," Fletcher said. "I had lived the ordinary club life—plenty of drinking, smoking and rich food. At the time I came to Chicago I was prepared to die. I didn't think there was a chance for me. I had settled those of my business affairs which required settlement by a live Horace Fletcher rather than by an executor acting for a dead one. It was my intention to complete a last business deal in Chicago, then meet my wife in New York and cross the ocean. I felt that the campus at Oxford would suit me as a stage setting for my closing tragedy.

"I was so profoundly impressed by my glimpse of that waif of the Chicago streets that I made up my mind to live.

"I thought I would study out my own case. I purchased a few books on medicine. I found, to my distress, that I had almost every known disease, according to the symptoms described in the books. I

read through the volumes again, and began to wonder how I, so afflicted, could have lived so long.

"In reading the medical books, I noticed that though every other part of the anatomy was taken up and discussed at much length, there hardly was a word about the first three inches of the alimentary canal, and I decided that this part of me might have escaped the complication of disorders by which I felt I was harassed.

"Then I was filled with a determination to study this tiny portion of myself, and prayed that in it I might find something with which to cure the rest of me.

"So I studied, and then studied some more, I pondered, and did a little additional pondering. Finally I came to the conclusion that since there was nothing in scientific books to show me a way to make three inches of alimentary canal save my life, I would have to do something original with it. Mind you, I wasn't even sure that these three inches were not affected. I just hadn't been able to find any symptoms described in the books to show that they were out of order.

"It was obvious that nothing but eating could have anything to do with that section of the alimentary canal. I had tried dieting and it hadn't done any good.

"Then it struck me that I never had tried chewing my food; that is, chewing it more than was necessary to swallow it. Chewing food seemed my only way out, and the chance slim. However I argued with myself, when food left the mouth it passed beyond control of the eater, and it ought to be prepared for the stomach, which I learned, had no teeth.

"So Fletcherism was born.

"I went into the dining room of my hotel, and ordered some potato and bread and butter to try out my idea. I sat over one potato and a couple of slices of bread for more than an hour, and I chewed until tears came into my eyes.

"But, after the first effort, I discovered something. That bread and potato tasted better after I had chewed each bit, than any concoction every conjured up by a high-priced chef.

"Since then I never have bolted a single morsel. I have reduced my weight from a standard of 213 pounds to between 160 and 170 pounds. There isn't a life insurance company in the world today

that would decline to do business with me, though thirteen years ago I couldn't have made any proposition to them with promise of success by which I could get a lesser premium than the entire amount of the policy.

"Talking about what Fletcherism will do for weight, I am reminded of a case some years ago. Two Pittsburg steel men—brothers—were in poor health, when one of them caught hold of one of my books. One of the men weighed 250 pounds and the other 100 pounds less. Their height was the same.

"They tried Fletcherism and got results. One of them sent me a letter in which he described his experience. The family weight, he said, had been evenly divided, though each brother duplicated, portion for portion, the meal of the other. Thus, though the same amount of food was consumed in each case, the brothers were brought to a standard of health and efficiency. It was just another proof that Fletcherism works either way and must eventually bring the Fletcherite to the gates of health. And if he keeps up that eternal chewing he will pass through the gates and enter the road to longevity.

"When I realized the significance of what I had discovered, I decided to devote my life to carrying on a series of experiments in nutrition. I need not say how often I have sunk my own money in my propaganda or how much I have paid out of my own pocket for expensive laboratory work.

"I picked up a number of tramps and did a little personal experimenting on them in Chicago. For a few days I would take them into the fashionable restaurants and order them costly meals. Probably everybody thought I was crazy.

"After testing their appetites at the hotels, I went with them to the cheap restaurants and tested out the efficacy of grease and carelessness. I found that my tramps thrived on grease and grew wan under the influence of rich food.

"All the time I was Fletcherizing—I already had begun to call it that. I spent several years with such experiments as this, all of which brought home to me the fact that the secret of health lay in thorough mastication of food. In the meantime I devoted myself to doing a little writing and turned out several books—short ones—in which I touched on the principles of Fletcherism so far as I myself had gone

into them at that time. At one stage I was so deep in experiment that I thought I had reached a stone wall. Chemists were using the x-ray in carrying on parallel investigations at my expense, and I feared that Fletcherism, after all, was doomed.

"But finally I arrived at this solution. Fletcherism, as practiced, had done more for me than the best doctors in the United States. Regardless of the outcome of the experiments, regardless of whether or not we could find truths about it and a basis for theories with which to fill text-books, Fletcherism had come to stay. It had this advantage, it succeeded in the concrete.

"I haven't arrived at the end of the way yet. In various parts of the country chemists still are working over the problem of the theoretic side of Fletcherism. But if there is any doubt as to the merit of the system, look at me now and recall what I was thirteen years ago. Or ask John D. Rockefeller or Thomas A. Edison. These are men who have regained their health by Fletcherizing after the medical people had failed to aid them. I guess that Mr. Rockefeller and Mr. Edison are pretty representative American citizens. Their experience ought to count for something.

"Do you know," the father of Fletcherism added, with a cheery smile, "that the main trouble with every new propaganda is simplicity? That sounds, in a way, paradoxical, I know. I have had more trouble because of the very simplicity of my system than through anything else.

"I travel through the country now, lecturing where I am wanted. Where they can afford to pay me, I accept a fee and put it into my investigations. Where they can't afford to pay me I speak for nothing."

"By the way," said Mr. Fletcher, "it is a matter of history that the first electric light in America was installed in State street, Chicago. That was even before Edison came into the field. Well, I was the man who brought that light from Europe. It was the wonder of the country.

"Though it's a long time since I've been in Chicago as a Chicagoan, and not a mere visitor, I once had a large store in the loop district. Before I became a sociologist, and, in turn, food faddist and man of health, I owned a chain of stores through the country, in which I sold Japanese wares.

"When I was a young man, I tried about every business on the globe. I was born near Boston, and, after leaving school, I went into the merchant marine. Finally I got to China and took berth as captain of a lorcher—a two master, carrying native lateen sails. I navigated Chinese waters for several years and then started to travel. Between times I managed to equip myself with a college education. My father was a wealthy ship owner, but I determined to make my own way.

"But, to get back to Fletcherism, which hasn't must to do with what I did before I began to eat scientifically. I haven't devoted all my time to lectures nor laboratory experiments by a great deal. Experiments on a big scale have been made all over the country, and I either have been on the spot to watch their progress or in touch with them from a distance.

"For instance, a body of students at Yale tried out my system, after I had lectured before them, and found they were able to cut down their expense for food nearly half. In another case students at a school for missionaries in Tennessee decreased the drawing on the commissary department of the institution by more than 50 per cent through Fletcherism.

"Look at the matter of eating from a philosophic standpoint. You find that man was a healthy animal until the coming of aggressive hospitality. That is the thing I blame for our present era of indigestion. We need something to protect us from our luxuries. Fletcherism will do it.

"Alcohol and tobacco may be classed as luxuries. Use of them creates a desire for more of them and abuse of them. The Fletcherite need never be compelled to battle with desire for either. Practice of the system makes him immune."

"Just about what is your diet?" Fletcher was asked.

"I eat anything and everything, depending on how I feel when I am ready to partake of food," said Fletcher.

"But what are your favorite foods?"

"I should say that a baked potato and bread and butter, with a glass of rich cream, would suit me just at the present time." Fletcher replied. "Fletcherizing doesn't lie in what you eat; rather, it is how you eat what you eat. Chew, chew, chew!"

"Before I take my breakfast I do a morning's hard work. Sometimes the work is physical, sometimes it is mental; more often it is a mixture. I never sleep more than five hours, and generally manage with four or less. When I rise in the morning my head is clear, and I do not have that feeling of exhaustion that came to me before I made my discovery under similar circumstances.

"Sometimes I eat only the one meal and it suffices for the day. The first meal, my breakfast, I take while everybody is eating luncheon. I have no set time for the second and last meal of the day. I may have it at 7 o'clock or at midnight or not at all. I allow my stomach to decide for itself.

"Last August I fasted for seventeen days for the sake of experiment. I found I was so trained to a meager diet that I felt no desire for food—did not even feel the lack of it.

"For more than a hundred hours I drank no water. I was not thirsty until I indulged in a little game of baseball—I'm not too old for that, thanks to Fletcherism. After the game I drank sparingly.

"I went on and on without eating. Strange as it may appear, I did not suffer in any way. I went ahead with my work as usual and did not abate my physical or mental efforts in any way because of my fast. At the end of seventeen days I decided that it might be well to eat something.

"Conceiving a hankering for baked beans, I ordered some prepared. To cook beans properly twenty-four hours is required. I waited for them without especial impatience.

"When they were ready I had them served wrapped in the napkin in which they had been baked. I took the cloth from the earthen dish, and the savory odor assailed my nostrils. Even that did not convince me I was hungry.

"For a moment I was undecided. Then I lifted a bean and put it in my mouth. Still I did not feel a pang of hunger or a thrill of expectation. After holding the bean in my mouth for a few minutes I crushed it between my teeth.

"Then, all at once, I was ravenous. My being was permeated by subtle fumes that seemed to have been released from the bean. I felt my cheeks quivering and my eyelids grew heavy with delight. My head was whirling in veritable intoxication.

"My soul seemed singing me a song of content. I chewed that one bean as I chew everything—until there was not a bit of taste left in it. Then I swallowed it and put several more in my mouth.

"By the time I had eaten perhaps a half ounce of beans my hunger was satisfied and disappeared as magically as it had come. I did not eat again for twenty-four hours. Then I returned to my regular irregular schedule."

Fletcher is not a vegetarian, but he never eats meat. He says that if he ever has a desire to eat meat he will do so, but that he will wait until the hunger for it really comes.

"No, sir," he will tell you, "I haven't eaten meat for eight years. Is isn't because I object to it on principle, but because I do not care much for it. I eat what I get the most enjoyment from, and I live in the manner which yields the great dividend in happiness. I am an epicurean."

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The *Chicago Eagle* calls attention to the enormous amount of gold which is being used in dental restorations. It deserves to be read, as it brings figures to the surface which surprise:

MILLIONS IN TOOTH FILLINGS.—IN TEN YEARS IT IS ESTIMATED  
\$15,000,000 IN GOLD HAS BEEN USED.

Of the wealth of this country there is a certain part that has never entered into the reports of the census or fiscal departments of the government. There is, if the estimates of men who should know are to be taken as authoritative, over \$15,000,000 personal wealth in the shape of gold, of which the government is entirely ignorant, or, if not ignorant, has decided not to mention in its financial reports. Each year there is over \$2,000,000 worth of gold that disappears, says the *Boston Post*, that is lost to the moneys of the world, and yet it is not lost.

More than \$2,000,000 worth of gold is used annually in caring for the mouths of citizens of the United States who have been neglectful in the manner of their teeth. This \$2,000,000 is practically wealth that is fixed in the mouth of a dentist's patient; it ceases to exist as a precious metal of importance in the world of finance, and is only a plug in a tooth, a base article lost forever as an article for



which men have fought and died and murdered and perjured and sold themselves, since the world began.

The figures seem vast when the small amount used in making a filling is considered, but they are undoubtedly correct. The man in charge of the gold department of the largest dental supply house in the country arrived at these figures after extensive research and calculations, and his estimate is verified by other men in a position to know.

Two million dollars taken out of its stock of gold is the price that the country pays annually for having its teeth cared for in an up-to-date manner.

Ten years ago it is estimated that only 25 per cent of the people of this country ever went to a dentist except to have a tooth pulled. Five years ago the percentage was 33 1/3. Now, it is declared, 50 per cent of the population pay visits to the dentist's chair for some other reason than that of having an aching tooth extracted. This increase in the number of dental patients in the country has resulted in a consequent increase in the amount of gold used for this purpose. Practically all of the 50 per cent who are numbered as the dentists' patients have some gold in their teeth. Thus ten years ago there was only about \$1,000,000 worth of gold put into the mouths of the citizens, as against the \$2,000,000 of today.

Using the rate of increase each year for the last ten years as a basis, the average yearly consumption of the precious metal in this manner has been about \$1,500,000 a year. This would make about \$15,000,000 worth of gold which has been put into teeth since 1894. For this amount could be built three of the best battleships in the world, the president's salary could be paid for thirty years, every voter who goes to the polls this year could be paid a dollar for his trouble, and still leave a million for good measure.

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**"THE MAN PAST FIFTY."**

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BY S. F. JACOBI, D.D.S., SAN ANTONIO, TEXAS.

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Being "shelved" after thirty-five or forty years of practice in one community is more or less the experience of the majority. To advise in such a case one should know all the conditions, such as size of town, location, and the financial condition of his community, or whether it is a farming district or a manufacturing center.

We all know that men in all professions and businesses, at some time in their career, get into a rut. They have done well in the past with the old methods and do not realize that modern methods have slipped upon them until it is too late, and they find themselves shoved into the background and the new up-to-date brother has walked off with the business. It behooves us to continually keep abreast of the times by study and reading our valuable journals and the new publications, and occasionally make a visit to the larger cities to rub up against the best men in our profession who, as a rule, are found in the large centers. We should also attend association meetings and clinics and see what progress is being made by our investigators and men who spend a great deal of time in research work. No matter how successful we have been, one can always pick up a good point from association.

Another thing, we are prone to allow our office and fixtures to become antiquated.

Throw out the old stuff—buy the very latest and best chair, cabinet, engine, and all other appurtenances that go to make up a modern dental operating room. Decorate your rooms tastefully and neatly—I am partial to the white enamel operating room. It is clean and clean looking. Everybody appreciates this; they feel that the instruments you use are sterile and clean. Boil your instruments right at the chair in a sterilizer placed on a table especially for that purpose. Keep your little mouth napkins and cottonoid rolls in sterile jars with lids. Use individual drinking cups at chair; use fine, pure white linen towels to protect the dress of your lady patient—a towel that does not leave lint on everything it touches.

Now, I am not assuming that our unfortunate brother does not carry out the details I have mentioned, but I venture the assertion

that 90 per cent of the men who have been "shelved" have brought it on themselves by staying in the rut that their own negligence has so placed them.

Cleanliness is the stepping-stone to a select permanent practice. All the printer's ink one can use is not one-half as effective as the endorsement of our patients. They spread the news better than any newspaper, and if we not only keep our appointments clean, but ourselves as well, our clientele will advertise it, and then we must back it up with good conscientious work. The laity are becoming more and more educated in sanitation, and they are demanding cleanliness more and more in their homes and from those with whom they come in contact.

I trust this article will meet the eye of some brother who is in a rut, and that he will stop right now and get out of the groove. He will feel that he has taken a new lease on life, and will do better dentistry as a result.—*The Dental Brief*.

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#### ASSOCIATION BRINGS RELIEF

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BY J. L. MANIER, D.D.S., MEMPHIS, TENN

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When individuals assemble in a body for a purpose, they represent something; whether it is out in the open air, with nothing but the skies over their heads, or in a lowly hovel, or in a private room, or in a public auditorium, they assemble for some purpose—*good* or *bad*. We have all kinds and all classes of associations. We have riotous gatherings of an element more or less in defiance of the law, or, if they (the rioters) are of the better class of citizens, it may be an instance where some grave crime has been committed, or the public dignity has been imposed upon in some way, wherein the process of law is so slow and uncertain, patience ceases to be a virtue, and the wrath of the usually peaceful citizen asserts itself and he takes the law into his own hands. A gathering of this kind is for justice and betterment of conditions for the community as a *whole*. We have riotous gatherings of another class which is the opposite to the above and of a criminal nature, as the Reelfoot Lake Night Riders' assault, the Chicago teamsters' strike, etc. These are purely selfish and for personal gain, or revenge for some supposed injury. Demonstrations

of this kind are the destroyers of society and government, and represent the brutish and evil of mankind. We have the religious denominations in assemblies in most enormous numbers, and the caretakers of the souls of the various parishes and flocks meet and decide what is best for their brethren and sisters. And they will propound questions in the interest of the order: What will keep the lukewarm members in attendance; what will make the meetings interesting enough for faith; what is our best system of soul-saving? etc., and all of this is for the advancement of society.

Today we have the bankers associating, studying the best ways and means to transact business; that is the scientific way where you get the greatest amount of results from the least energy spent; or, in other words, get the business and the profit without the risk, the saving of labor and time by systemizing the work. We have the manufacturers, the jobbers, wholesale and retail, creditmen of business in every walk of life, meeting and advancing ideas for the betterment and enlightenment of conditions in their special branch. We have the art societies, literary societies, musical societies, societies of every nationality, and societies for social features alone; all of them meet for a purpose, and it is mostly for some good purpose, for some advancement in their special sphere of action. In fact, man craves the association of his fellow-kind. There is no one who is contented with his own self as companion for his thoughts; if he is so inclined, he is bordering on to insanity, and is to be pitied. So the individual as a unit, having an affinity for a like unit, will form the molecule for which it has its special liking. From this process of affinity and natural molecular formation we get the various bodies of science, art and trades.

The class in which the unit, or individual, belongs is the class in which his sympathy and his interests are concentrated, and is the class in which he feels freer and more at home than any place else; it is the class in which he lives, loves and works for.

We have assembled here to a class specific in itself, in that it is on art, and a science which has accomplished in the last century more than all the previous years known in history, and which may yet advance just as rapidly in the next century as it has in the one hundred years just passed. The advancement of all science, arts and trades is due to social intercourse and writings which those great in their devotion and constancy to their life's work give us the knowledge of, their suc-

cesses and reverses, showing us the best and surest way for our advancement, and steering us clear of the rough and ugly places known as failures.

The general practitioner must depend upon the man doing special work for his information, as the general practitioner has not the time for research work, nor is his skill as highly developed as that of the man doing special work.

The bacteriologist, the histologist, the chemist, etc., give us the results of years of work in the laboratory. The general practitioner does not have the inclination or the time to put into such special work, and accepts what is given by that authority.

Any member of any society who tries to hold the beacon light should be most sure of his assertions and believe firmly that he is right before giving to his contemporaries successful results, or seemingly successful results, he has achieved in some specific case. That our society is a great benefit to the profession is not to be doubted. All of its members get mutual benefits, some more, some less, and if any member has anything to give, it matters not how little, he should give it unhesitatingly and not be bashful about its being small.

Encouragement should be shown the new man to come into the Social Society and take an active part, and, when he does, he will very likely become interested in the State Society, and from that, to the Southern Society or International, showing that it is association that he wants and must have, and the more association the more good results for dentistry, and the higher development of the individual.

In a general way we are all very well posted, and in some particular branch some members may be more experienced than the others and can give the majority valuable hints and pointers to follow. And it is just these things which we do not know that we are anxious to learn, and it is these pointers, given to us for a benefit, that should be correct from a scientific basis or from practical experience.

It is oftentimes the case that an enthusiastic man will give some method of work or treatment which he has found to give best results, and will advocate it before the society, giving the members the privilege to follow him or not, as they may see fit, which is all right and correct for the members to so do. In that, he is conscientious, and if he is wrong, those that know better will gladly advise or correct the fault. In a State Society as this is, the various members repeatedly

get each other's patients and thereby see the pet treatment or system of some mechanical piece which he has advocated gone wrong. Our work stays with us, and can be seen not only by ourselves but by others. If we put in an inlay, fill a root canal, set a bridge, or treat a case of pyorrhea alveolaris, under a system of our own, and the other man gets your patients, he does very likely, because you have been over-enthusiastic in your work. We learn from our failures more rapidly than from our successful operations. If we burn a bridge, we want to know how to avoid it the next time. If it is a checked facing, again how to prevent it. If it is pericementitis following foot canal filling, or incorrect articulation in constructing your plate, we will sit up and take notice, put our thinking cap into commission, and get real busy finding a way to get over our difficulties. It is by these various failures we learn to be careful in our work and perfect ourselves in an all-around working ability.

Each worker who is ambitious when finding the old way is not quite as good as the new idea he has discovered, will take up the new, and when it has proven its valuableness over the old, and can be relied upon to fill its specific purpose, it is then he wants to herald the new method to his brethren who are always anxious to be enlightened. Each something new we get is a great accomplishment, and it matters not how little or how big, whether discovered in a moment of thoughtlessness or through years of research work, it adds to the whole; and it is the little things united that make the great body. Some of us may live our lives out and die of old age and will not have given anything to the profession which would add to its advancement as a whole, while others with the greater faculty of mind will take the lead and accomplish the seemingly impossible. Some men are born leaders in whatever walk of life they may follow, and, regardless of reverses, will continually put in their appearance at the top; others will rock in the happy mediocrity of life, serenely profiting and enjoying the good things that have come to them through the natural course of events. It cannot be the good fortune of us all to have the mind of a genius, and we should not feel a personal defeat because it has not been so. To be a benefactor is a blessing, and we can all be blessed by giving our united efforts in boosting the Tennessee State Dental Society with the presence of our smiling faces and a desire to talk in meeting.—*The Dental Brief*.

ETHICS.

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BY S. B. COBB, D. D. S., HOUSTON, TEXAS.

---

Ethics may be defined as "the science of human duty," or "the doctrine of man's duty to himself and the rights of others."

A comprehensive study of ethics implies a partial study of the evolution of the human mind. The higher man has risen in the scale of existence, and the further he has drawn away from his primitive instincts, the more clearly has he perceived that ethics is a part of his higher nature, and is indispensable to his soul as are air and food to his physical welfare.

It is impossible to set forth what might be known as a code of dental ethics, as impossible as it would be to try to deal with any other lengthy and practically illimitable subject by means of a few set rules; hence we ask by what standard may we examine ourselves to see whether or not we are ethically conducting ourselves in our practice? The best and most comprehensive answer to this would be are we governing ourselves according to the best instincts and promptings of our consciences, and are we doing unto our neighbor as we would that he should do unto us?

If we each examine ourselves in this light and in this manner, and do not find ourselves wanting in any degree, I feel that we may safely say that we are ethical men.

Above all, we should conduct ourselves with the highest regard for our professional brother and should never, even under the most trying circumstances, criticise his work or his methods to a patient. At the same time we occasionally have to face a situation where a patient is thoroughly convinced that he has received very poor treatment from our brother dentist and, too, it looks to us like one of those mistakes we all are credited with at times. A situation of this kind has to be handled very judiciously or the patient will say that "you know it is a bum piece of work, but you won't criticise." In the ready criticism which so many of us seem to have for the other we often overlook the fact that in that certain case he may have been laboring under difficulties which it is impossible for us to understand; and again we should also hesitate to criticise any man upon his work or methods, because it is his right to have his methods the same as it is ours to have those peculiar to ourselves; and when

it is boiled down, condensed and examined under the limelight of ethics, no man has a right to criticise another man. He may make a suggestion, but a criticism comes in the nature of an insult.

Again, in the matter of advertising one's self, at first sight this would seem to mean the placing of a flagrant scare-head in the newspapers, but when we come to analyze it we find that there are several ways of advertising. Often we find that the newspaper notoriety is not necessarily a scare-head, but may be tucked away among the news items and be clothed in an air which will tend to lead the public to believe the writer to be a leading man among ethical practitioners in his neighborhood.

Again, when a patient enters our office and consults us relative to an operation performed by one of our professional brothers, sometime a look, hint or shrug of the shoulders will be more significant and more unethical than to openly denounce a man's operation. We should not overlook this fact. We do not need to say any certain words or make any certain derogatory remarks to be unethical, but our very actions carry fully as much weight and possibly untold harm to the other man.

When a patient enters our office for a consultation, and we give that patient to understand by look or action that we have the nicest offices in our community, perform the best operations and have the most up-to-date appliances, we do the patient, the patient's former dentist and ourselves each an injustice. Let us see how. We do the patient an injustice by telling him something which we know to be untrue when we say that we can do *everything* better than *any one* else; we do the patient's former dentist an injustice by leading the patient to believe that either his methods or his conscientiousness was at fault; and our very modesty should rebel and shrink from so flagrantly harping upon our own personal achievements and virtues.

I might write at greater length upon this subject if I were to take up the dentist's duty to his patients, but I have tried to limit myself to his duty to his fellow practitioner whose respect, regard and friendship above all things he should hold most sacred.—*The Texas Dental Journal*.



# WHO'S WHO AND WHY.

[Under this title the journal will devote some space to acquainting its readers with the presidents of state dental, and important local societies; and treat of such other distinguished dental practitioners as the personal news items merit. By this means the readers are brought into a closer relationship with the leading spirits of their profession, and a better understanding can grow out of such an acquaintance.—EDITOR.]

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## EATING AND HEALTH.

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### Most People Dig Their Graves With Their Teeth, Says Horace Fletcher.

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BY HORACE FLETCHER.

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The word "epicure" is rarely understood in the right meaning. It means not a glutton, but the reverse. An epicure is an advocate of the simple life, for the purposes of best efficiency. It is the man who learns the good thing and uses it for his own nutrition. The general impression is that the word has to do with those who devote their entire time to sampling things to eat, but this is not the case at all.

The Danes, among whom I have been living this summer, have accomplished much along epicurean lines. I am going to speak of some of the practical economies which have been instituted in Denmark and which should be copied in other countries. Denmark is the land of Jacob Riis, of Moltke, of Germany, of Hans Andersen and of Canute. Shakespeare speaks in "Hamlet" of things "rotten in Denmark," but I found the people far advanced in private and social life.

There are about two million inhabitants, and of these about a half million live in Copenhagen. There is a very fine school system among the farmers. Education is brought to their doors by a system resembling the interurban trolley lines in this country; that is, the schools are distributed so that the farmer is in close touch with them.

There is a great system of co-operation among the farmers. They work together in cultivating their products and in getting them to market. The farmer who has one egg to put on the market has the same chance and privileges as the farmer having 1,000.

This system of co-operation has led to an increase of from 15 to 18 per cent in the value of the products above that of any other country. The Danes have reclaimed over eighty square miles of moors which were utterly useless before.

The Danes take care of the children. They do not allow any child to escape over there, whether he be of low or high birth. There is a kindly supervision and care, no matter whose child it is. The result of this protection of the young is that the country is almost entirely without crime.

No children are allowed to go to waste simply because their parents cannot or will not care for them. The Danes recognize children as being one of the resources of the country, and so are careful to rear

them to be efficient and capable. It is a policy of true economy and a remarkably beneficial one.

I suppose I must, however, say something of the epicureanism of food, for food is the basis of true epicureanism. Fletcherism has been tried in Denmark with good effects.

It seems ridiculous that one person should attempt to tell you how to eat. If Edison were asked he might tell you something about electricity. You are not all electricians, and he would undoubtedly give you a great deal of information on the subject. But you are all eaters. Food is the basis of true epicureanism. Nature's foods were of the kind that necessitate chewing. There were no soft foods and drinks in the early times. All of nature's foods were of such shape that the nourishment had to be sucked or chewed out of them. In the primitive days people had all day to sit down and get the good out of food. There was no danger from lack of time in which to properly consume food.

Consequently, men lived to a great age, unless they met death by violence. The skulls which are found have all the teeth still in the head, worn but not decayed. The remarkable feature of prehistoric anthropological remains is the excellence of the teeth found in the skulls, as compared with the teeth of the school children of our own gluttonous and carnivorous age.

Then came modern cooking. The result of this is that in the twentieth century we find ourselves without knowledge of how to overcome the menace of our luxury and wealth.

We digest what we taste. Take a cube of bread into your mouth. It has not taste at first. Then the saliva of the mouth begins to change the starch into sugar and it tastes sweet. The stomach must be prepared to digest the food before it is swallowed. It is not true of Fletcherism that it takes longer to eat than before. The same amount of time should be spent on a meal; say twenty minutes to half an hour. The only difference will be in the amount of food consumed. Only one-third to one-half the usual amount is needed.

Dr. Cannon's investigations of the process of digestion with the X-ray show interesting facts. Cats were used as the subjects, but anti-vivisectionists need have no fear that they were made to suffer. On the contrary, they enjoyed the experiment immensely.

Food was stained so as to be visible inside the body. The whole process was shown, how the food moves around in the stomach and is picked up and sent into the blood.

As long as the cat is content and purring the digestion goes on with rhythmic regularity of motion, but torment the cat, and make it angry, and at once the process stops and the food becomes a dead load on the stomach.

There is a tired feeling which is the result of autotoxication, resulting when similar conditions exist in the human body.

If you are nourished in the epicurean manner you can turn yourself loose in any field of activity and be efficient.



HORACE FLETCHER



# ANNOUNCEMENTS

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## **SOUTH DAKOTA BOARD OF EXAMINERS.**

The South Dakota State Board of Examiners will hold its next meeting at Sioux Falls, S. D., January 16th, 1911, beginning at 1:30 p. m., and continuing three days. All applications for examination, together with a fee of twenty-five dollars, must be in the hands of the secretary by January 1st. Applicants who have not complied with the above will not be permitted to take the examination. For further information, blanks, etc., address Aris L. Revell, Lead, S. D.

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## **THE G. V. BLACK DENTAL CLUB**

The G. V. Black Dental Club of St. Paul, Minn., will hold a mid-winter clinic on Feb. 16-17, 1911.

A very interesting program is being arranged. Operations will be made and papers read by prominent members of the profession. Full program will be published later. The profession generally is invited to attend this meeting.

For further information address R. B. Wilson, Sec'y, American National Bank Building, St. Paul, Minn.

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## **INSTITUTE OF DENTAL PEDAGOGICS.**

The annual meeting of the National Institute of Dental Pedagogics will be held in Washington, D. C., December 27th, 28th and 29th, 1910. John Q. Byram, President.

# PUBLISHERS' CORNER

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**DO NOT BE ASHAMED TO READ ADS—THEY CONTAIN NEWS  
OF VALUE TO YOU.**

---

Some men think it is a sign of weakness to read advertisements. They carefully avoid reading advertising pages and jump their eyes to the reading matter. If we could read their thoughts we would find them running something like this: "These fellows who put those ads in the Journal can't fool me. I am a level headed man who cannot be fooled by promises or advertisements—I won't bite."

It is surprising to know that some people really feel antagonistic to advertisements—feel that they are in danger of being persuaded to buy something that they do not want or need if they yield to this "wowman's weakness" and read the "ads."

Nothing could be further from the truth about advertisements than such an impression. ADVERTISING IS A DIGNIFIED BUSINESS MATTER. The announcements of a manufacturer or dealer in the pages of a dental journal is not to be likened to the "spiel" of a "barker" before a sideshow or circus. It is the soberly considered and carefully prepared statement of what that firm has to offer you in the market of the day.

Before writing the advertisement he has analyzed his proposition and made note of the points which the dentists will probably want to know about, such as price, quality and the various points of adaptability to the practice of dentistry. These advertisements may be for furniture, chairs, office coats, antiseptics, books, instruments or material. Nearly always there is some one of the articles advertised which you are in need of and will purchase from some one. In this event it is only fair to yourself that you thoroughly familiarize yourself with the points of interest in regard to all the goods of a similar nature on the market, and how are you going to do this if you do not read the advertisements? It is at least the most inexpensive way and it usually leads to the preservation or at least conservation of the bank account.

ADVERTISEMENTS PAY—not only the advertisers but the ones who read them and digest them.

A wise man can afford to change his viewpoint. If you have been superior to reading advertisements, or careless or indifferent, think a moment and even read a few of these gems of business. You cannot help concluding that there is money in advertising for the man who reads.

---

The following letter from Dr. Burton Lee Thorpe, president of the National Dental Association (1909-1910), and associate editor of the *Dental Brief*, will interest the readers:—

“St. Louis, Missouri, September 9th, 1910.

“Dear Doctor Cigrand:—

“Yesterday at the dental depot I chanced to run across THE AMERICAN DENTAL JOURNAL and was glad to see it revamped and you as its editor. Congratulations!

“Please send me all the numbers since you have been the editor, and I will send the *Dental Brief* in exchange. I have just finished reading your excellent article in the September Dental Review entitled ‘What Dentist Have Contributed to Other Professions.’ It is delightful reading and I hasten to tell you how much I appreciate your efforts. You surely have done excellent work and I appreciate it very much.

“With all good wishes for you and the AMERICAN DENTAL JOURNAL, I am sincerely,

“(Signed.) BURTON LEE THORPE.”

Dr. R. B. Tuller, who was for ten years an associate editor of the AMERICAN DENTAL JOURNAL, sends the following appreciative letter:—

“Dr. B. J. Cigrand,

“Chicago, Ill.

“Dear Doctor:—Allow me to congratulate you on your selection as editor of the AMERICAN DENTAL JOURNAL, and to compliment you especially on the initial number under your editorial guidance and your ‘Declaration of Independence’ on July 4th, 1910. Now, ‘go to it’ and give us the best magazine there is to be had.

“I wish you success.

“Yours truly,

“(Signed.) R. B. TULLER.”

---

Dr. R. Brewster sends in the following appreciative letter:—

“1206 Astor Street, Chicago, Illinois.

“Dr. B. J. Cigrand,

“Chicago, Illinois.

“Dear Doctor Cigrand:—I have seen today for the first time, a copy of the AMERICAN DENTAL JOURNAL since you undertook its editorship. I cannot refrain from mailing to you at once my congratulations on the quality of the matter contained as well as the general appearance and style of the journal.

“It is gratifying to see that you have complete control of the editorial portion, the wisdom of the publishers in this respect is to be commended.

“Your ‘Declaration’ aims high, may it be possible for you to carry it out in the fullest sense and you will surely reap the reward your editorial abilities deserve.

“Wishing you every success,

“(Signed.) R. BREWSTER.”



**Wanted****For Sale****Exchange**

**NOTE:**—Advertisements in this Department not exceeding fifty words will be published **Free** for three insertions for subscribers whose subscriptions have been paid for **one year in advance.**

Advertisements under regular heading from non-subscribers will be inserted for a charge of five cents per word. Remittance in full must accompany such copy.

Copy must be on file in our office by the 15th of the preceding month in which insertion is desired.

**In answering these advertisements** through the American Dental Journal, enclose your answer in stamped envelope with the advertiser's letters marked on the corner. **No unstamped letters will be forwarded.**

We are not responsible for any advertisement appearing in these columns.

**PUBLISHERS.**

**FOR SALE**—Best located advertising practice and a well equipped office in city of sixty thousand, in Nebraska. Practice last year, twelve thousand. Reason for selling will satisfy you. If you mean business, address "Bargain," care of American Dental Journal, 39 State street, Chicago, Ill.

**FOR SALE**—One of the best dental practices on the western slope of Colorado, noted for its health and climate, in heart of the great fruit region, full electric equipment, a bargain if taken by December 1st, 1910. Good reason for selling. Address Box No. 822, Grand Junction, Colo.

**FOR SALE**—At invoice, a dental practice in city of six thousand inhabitants in eastern Illinois. Practice, \$2,000 per year. Will give terms. Address "Bargain," care of American Dental Journal, 39 State street, Chicago.

**FOR SALE**—Dental practice and outfit, and household outfit; former invoices \$450.00, latter \$500.00, will sell separately. Any reasonable offer accepted. No other dentist, growing town, New York State. Reason: Owner already established in Mexico. Address Apo 143, Saltillo, Coah., Mexico.

**WANTED**—Dental practices.. My method of finding buyers is successful. No publicity for you. Write for information. Unlocated dentists write for bargain sale lists. Mention states desired. The Dentists' Middleman, C. M. Cryor, D. D. S., Box M., Franklin Grove, Ill.

**WANTED** — Second-hand operating outfit with chair, cabinet, instruments and brackets. Address Dr. J. H. Jones, Parma, Mich.

**FOR SALE**—\$7,000 dental practice. This is the finest location and one of the best equipped offices in downtown Chicago. Sell at invoice for cash, \$1,250. Other business. Address "C. Q. D.," care of American Dental Journal, 39 State street.

**WANTED**—A second-hand Elgin Vacuum Casting Appliance. Must be in good working order. Address, Dr. D. J. Kuns, Marseilles, Ill.

**WANTED**—Position by capable manager of fifteen years' experience in advertising office. Would consider purchasing interest in the business. Any dentist wishing to enter into the advertising business please correspond with "Manager," care of American Dental Journal, 39 State street, Chicago.

## PYORRHEA

Owing to the value of Sal Hepatica in the treatment of diseases of the uric acid diathesis it has been found specially beneficial in pyorrhea alveolaris, a malady in which rheumatism and gout are potent causes. It contains the salts similar to the celebrated Bitter Waters of Europe, fortified by addition of Lithia and Sodium Phosphate. It stimulates liver, tones intestinal glands, purifies alimentary tract, improves digestion, assimilation and metabolism.

Write for free samples.

**BRISTOL-MYERS CO.**  
BROOKLYN-NEW YORK



By mentioning the AMERICAN DENTAL JOURNAL when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.

**FOR SALE**—Victor Motor Lathe, complete, with chucks for direct current, 110 volts, first-class condition. Price, \$10.00. Address "Victor," care of American Dental Journal.

**FOR SALE**—In Mexico, sixty miles of Arizona, population 15,000; one other dentist; outfit electrical, modern; five years established; fine prices; requirements, register diploma. Practice with Americans, big colony. No need of Spanish, altitude 5,000; reason for selling, retiring. Address, J. P. M., care of American Dental Journal, 39 State street, Chicago, Ill.

**DENTISTS WANTED**—With Iowa license as assistant or partner. Address Dr. W. G. Hine, Muscatine, Iowa.

**FOR SALE**—Swell and most up-to-date dental outfit in Kentucky town of 10,000 inhabitants in heart of Blue Grass. Finest equipped office in city. Doing a good business. Change of business on account of ill health. Address "Kentucky," care of the American Dental Journal, 39 State street, Chicago, Ill.

**WANTED**—Pelton Furnace and Pyrometer—cheap. What have you? Address "Furnace," care of American Dental Journal, 39 State street, Chicago.

**FOR SALE**—Ethical practice, established three years. Fifth avenue, corner, New York City, north light, low rent, everything new and best money can buy. Reception room furnished in best mahogany, growing cash practice of \$3,500. Locating in California. For prices and terms address "James," care of American Dental Journal, 39 State street, Chicago, Ill.

**WANTED**—A regular Somnoform or Stark Inhaler, must be complete and in good condition. State lowest price. Address "Inhaler," care of American Dental Journal, 39 State street, Chicago.

**FOR SALE**—Ethical practice established ten years, town of 3,500, Western Pennsylvania. Well equipped for all general work, rent low, light operating room; am averaging over \$300 per month; good reason for selling. This will stand investigation. Address, "Rare," care of American Dental Journal, 39 State street, Chicago, Ill.

## COLONIAL ALLOY

**\$1.50 Per Oz.**

### WHY PAY MORE?

A comparison of Colonial's formula, with that of any other Alloy formula in the world, will show that from a monetary standpoint it is only exceeded in value by those Alloys in which Gold or Platinum is incorporated. It is noted for its edge strength and color. Sets very hard and retains a high polish. Send for sample and quantity price.

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We, the makers of **Antiphlogistine**, stand to lose should we make any claim which is not strictly in accordance with the facts. You, the dentists, are both judge and jury, and we can't get away from the verdict.

When we state, therefore, that **Antiphlogistine** may be safely used on the outside of the cheek in a case of alveolar inflammation, without fear of causing an abscess which will break on the outside, you can depend upon it that our statement is backed up by clinical experience.

This being the case, can any dentist afford not to give it a fair trial?

**THE DENVER CHEMICAL MFG. CO.**  
NEW YORK

DECEMBER 4th

YEAR 1910

# *The* AMERICAN DENTAL JOURNAL

Edited By  
BERNARD J. CIGRAND, M. S., D. D. S.

## DECLARATION:

*Devoted to advancing the art and science of dentistry;  
Arousing a deeper conception of our duty to the public;  
Instilling a broader and more liberal professional spirit;  
Aiding in elevating the plane of dental organizations;  
Supporting state boards in executing dental laws;  
Lending assistance to worthy and ethical practitioners;  
Instituting library and college extension courses;  
Pointing the way to entertainment, recreation and rest;  
Instructing in the science of proper practice building;  
Teaching the public the art of dental hygiene.*

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\$1.75 per year

{ Volume IX  
{ Number 12

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*SOMETHING NEW  
IN DENTAL FLOSS*

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container. Absolutely clean. Impossible to tangle.



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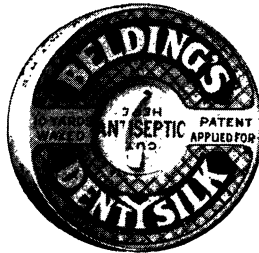
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Pocket Edition.



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the daily care of  
the teeth.

CUT OF SMALL CONTAINER — ACTUAL SIZE

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The best antiseptic for a dentist's prescription

As a daily wash for the preservation of the teeth, and for maintaining the mucous membrane of the mouth in a healthy condition, Listerine occupies a first place in dental and oral therapeutics. Listerine is truly prophylactic, in that it exercises an inhibitory action upon the acid-forming bacteria of the mouth, and thus maintains the alkaline condition so necessary for the welfare of the teeth.

## LISTERINE TOOTH POWDER

An innovation, in that it possesses neither fermentative nor harshly abrasive ingredients, Listerine Tooth Powder very acceptably meets all the requirements of a frictionary dentifrice, and promises to give much satisfaction to those who employ it, in conjunction with a mouth-wash of Listerine, suitably diluted.

*¶The undersigned will be pleased to send supplies of Listerine Tooth Powder samples for distribution to patients, upon receipt of the dentist's professional card, and this advertisement.*

Lambert Pharmacal Co., St. Louis, Mo., U. S. A.

# FREE SUBSCRIPTIONS

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**W**E want copies of the American Dental Journal for the months listed herewith and will give six months subscription **free** for each copy sent us by subscribers.

1909—December.

1908—January.

1907—January.

1906—January, February, August, September, November.

1905—January, July.

1903—March, June, August, September.

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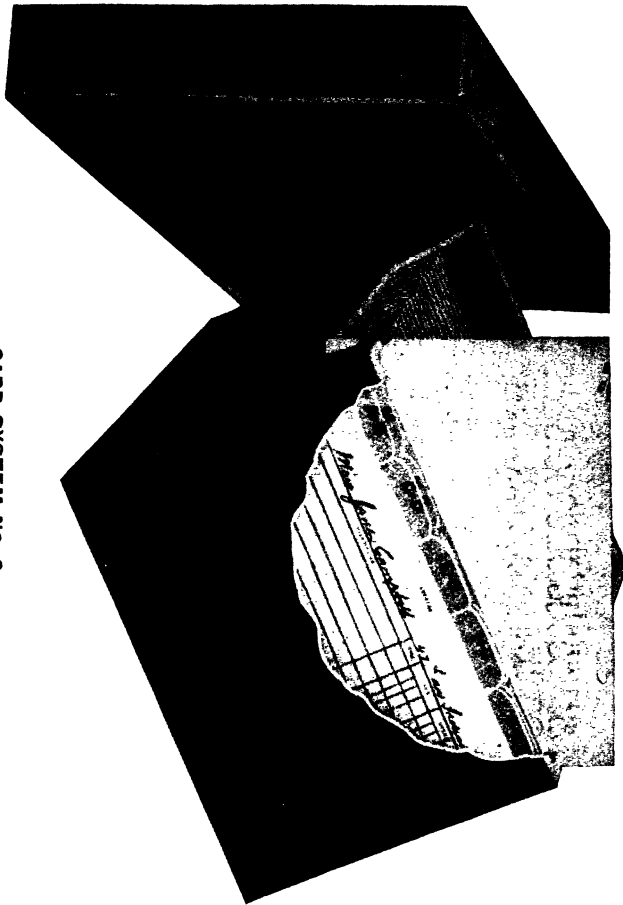
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AMERICAN DENTAL JOURNAL.

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Cresol-Formalin has been highly recommended by Dr. J. P. Buckley of Chicago and has been used very extensively by many practitioners in the treatment of Putrescent Pulp and Alveolar Abscess.

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This combination of Phenol and Sulphuric Acid was recommended by Dr. Geo. W. Cook of Chicago about 1896; since which time it has been extensively used as a substitute for Aromatic Sulphuric Acid in the treatment of Necrotic pockets in the Alveolar process about the roots of teeth and for enlarging small root canals, etc.

From a twenty-five per cent. aqueous solution to full strength may be used according to the needs of the case.

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Pulpcide is a combination of Arsenic, Cocaine, Zinc Sulphate and Eugenol, put up in tablet form for convenience of application. The form of this preparation was suggested by Professor Mawhinney in 1893 and is extensively used all over the world. The small soft tablet form, just enough in each for an application, is most convenient. By its use all danger of arsenic getting out of the cavity and destroying adjacent tissues is prevented.

No. R1592. Price per bottle, in neat case.....50c

**BLACKS—1—2—3—(Black)**

This combination of Phenol, oil of Cinnamon, oil of Wintergreen, was suggested by Professor G. V. Black of Chicago in 1885 and has many friends all over the world. In order to get the best results from this preparation, it should be compounded of chemically pure drugs. A trial package will convince you of the superiority of our preparation.

No. R1565. Price in neat case, extra size.....50c

**DENTINE OBTUNDENT—(Mawhinney)**

Dentine Obtudent is a combination of Menthol, Cocaine, Phenol and Eucalyptol. It will be found of excellent value when used in connection with warm air for the relief of sensitive dentine, rendering painless cavity excavation in nearly all cases where it can be used.

As no one likes to be hurt, this preparation will make many friends for the operator who uses it.

Saturate a pledget of cotton with the solution and apply to the dry cavity, and direct a stream of hot air upon it until all sensitiveness disappears.

No. R1578. Price per bottle, in neat case.....\$1.00

**CHEMICAL PRODUCTS CO.**

Room 407, 39 State St.

CHICAGO, ILL.



DR. C. E. WELLS, MANAGER

## OUR GUARANTEE

If the impressions and bites you send to us are taken properly, we give our unequivocal guarantee that the work returned to you will fit perfectly in the patient's mouth. However, we always give our customers the benefit of every doubt, and, in case of misfit, we do the work again without charge, any time within thirty days.

Flaws in the gold we use are never found. We never knowingly send out a checked facing, but often checks do not appear until the tooth is dry. Frequently, on rush orders, teeth are shipped before dry, or are inspected by artificial light, when checks are not apparent. In such instances, if checks appear, we replace the facing without charge.

Our material is the very best we can procure, and is dependable. A flaw in workmanship, under our system and policy of employing only recognized experts in the laboratory, is so rare as to give rise to no misgivings. Should the unexpected happen, however, the error will be cheerfully corrected without cost to you.

The Farnum Laboratory guarantee, then, is absolutely honest and superior work, such as will maintain your local reputation as a thoroughly satisfactory practitioner.

# The Claims

## WE MAKE FOR OUR CROWN WORK

The capable man who does nothing but make crowns day after day should produce practically perfect work. You can better afford to send your crown work to us to be executed by superior workmen under our guarantee to meet every expectation, than to attempt to do your own laboratory work. If you will let us show you how you can actually save money by such a policy, you will become a regular patron of the "Farnum Quality" Laboratory.

## We Claim These Points For Our Crowns

1. They are artistic, resembling the natural tooth in shape.
2. The band is heavy enough to stand a great deal of strain.
3. The cusps are reinforced, so they will stand mastication.
4. They are perfectly adapted to the tooth, and therefore require little fitting; the patient is thus spared pain and the dentist's time is saved.

## FARNUM DENTAL LABORATORY CO.

1316 MASONIC TEMPLE  
CHICAGO

Phone Central 2498

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By mentioning the **AMERICAN DENTAL JOURNAL** when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.



## **We are the Quality House in the Dental Laboratory Field**

We BELIEVE in Quality—TALK Quality and DELIVER Quality in every piece of work that leaves our hands.

We will not sacrifice Quality for Price and this policy has established the confidence of the profession in us. We enjoy the highest class patronage of any people engaged in Prosthetic Dentistry and our clientele has grown year by year until we stand in the front rank from point of volume also.

Yet, we maintain the same plan of individual and personal attention to each job that comes into our place, so that you are insured of two EXCLUSIVE ADVANTAGES in sending your work to us, namely :

### **ABSOLUTE QUALITY and EQUITABLE PRICE**

We want you to try us. Send for our book of reference and price list first. Do it NOW—you will thank us for the suggestion when you have read the book.

**DRS. CHRISTOPHER & GOLBECK**  
**Monarch Dental Laboratory Company**  
39 State St., Chicago



YOU, DOCTOR, are striving for the very things we offer.

You want to build up your practice to its limit—and you know that Individual Satisfaction of each patient is the first essential—so you are most particular that the Prosthetic Functions of your work be faultless.

But remember this. Acquaintance is also an important essential to your success, because you must have the patients before you can satisfy them.

Don't spend your valuable time trying to do your own laboratory work. Our facilities for this work are immense and we are practical men in all kinds of cases, besides being graduate dentists. Where you have one case of unusual nature we have hundreds. We handle every conceivable Prosthetic Case and our long experience is worth a great deal to you in your efforts to please and satisfy every patient.

You will get a lot of good by reading our new Price List and Reference Book. It is just off the press and contains much valuable information that will come in handy every day, besides giving, we believe, the most complete list of prices on Laboratory Work that was ever issued.

 Write to us today for a copy of this book.   
It's FREE and we will send it postpaid.

**DRS. CHRISTOPHER & GOLBECK**  
**Monarch Dental Laboratory Company**  
39 State St., Chicago

Dear Doctor :

You no doubt have in your practice a number of patients suffering from Pyorrhoea. Are you aware of the fact that **Borine Chlorate of Potash Tooth Paste** is one of the well known remedies used by the dentists of to-day? Borine dental paste is antiseptic. It will check the growth of the germs found in the mouth and leave the mouth in as nearly a sterile condition as can be made without harm to the tissues. With the daily use of **Borine Chlorate of Potash Paste** the teeth become whiter, gums healthier and firmer. If you will send us your professional card we will send you free of charge a large tube for your personal use and twenty-five cards for distribution to your patients. The patient can mail the card to the Borine Mfg. Co. and we will mail direct sufficient quantity to last them a week.

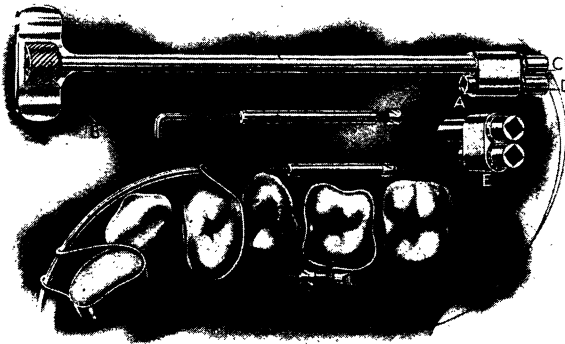
Yours very truly,

Borine Mfg. Co.

551 West 42nd Street

NEW YORK

**Direct—ORTHODONTIA WRENCH—Reverse**  
WILL REMOVE AND REPLACE ALL NUTS



This **Wrench** was devised for the purpose of overcoming the difficulty found in placing nuts on the posterior ends of alignment wire and traction screws. These nuts can be positioned in just a few seconds with perfect ease and comfort to the patient—a saving of time and temper to the operator.

**DIRECTIONS:**

Place the nut in the inner square jaw (A) of Wrench, carry back to end of arch wire or traction screw.—Rotating the milled head (B) held firmly—by means of a sliding motion between thumb and finger—will quickly screw the nut in position. **Do not twist wrench.**

In Retraction, a moment only is required to tighten the nuts, firmly retaining

all the movement gained. The double end (C and D) is used to tighten the molar clamp band nuts while cementing the bands in place.

Where the position of the molars or the elongation of the central teeth will not permit the use of the direct (C)—on account of the angle involved—then the use of (D) is indicated by rotating the milled head (B) toward instead of from you.

**PRICE \$3.50**

For sale at all dental depots. When ordering direct, send money order or draft, Chicago or New York Exchange to

**GEORGE E. BROWN**  
**THE ROSS DENTAL MFG. CO.**

**596 Sheffield Avenue.**  
**39 State Street**

**Chicago, Ill. or**  
**Chicago, U. S. A.**

By mentioning the **AMERICAN DENTAL JOURNAL** when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.

# Brewster's Gold

**Formulae of E. R. S. Brewster  
and known by the following**



Used by an ever increasing number of discriminating dentists.

Dentists who appreciate *quality* and have not had personal experience with our Gold are referred by permission to leading Dentists in Chicago.

Out of town Dentists are requested to mail their orders to

**Our New City Office  
22 East Randolph St.**

Most prompt and careful attention is given to Mail Orders.

Gold Scraps and Sweeps receive special attention and are bought for cash. The liberality of our dealings in this branch has made for us many permanent customers.

**E. R. S. BREWSTER**

**Gold and Silver Refiner**

**22-26 East Randolph Street, Chicago, Ill.**

**CAUTION!—BREWSTER'S GOLD IS SUPPLIED ONLY IN ENVELOPES  
BEARING ABOVE TRADE MARK AND EACH PENNYWEIGHT  
OF SOLDER IS SO STAMPED.**

# IN CHILDREN'S TEETH

it is essential that the deciduous be saved and made comfortable for the little folks, until their successors appear.

## PUTRESCENT PULPS.

are easily and successfully handled by the operator who uses

# ZYNOXALL

(TRADE MARK)

(ABSCESS TREATMENT)

Trial Package FREE on Request

After opening into the chamber, and cleansing as thoroughly as possible, apply a treatment of **ZYNOXALL**, seal up with cement or alloy, and that will be the last heard from that particular tooth, until it is ready to come out.

**PENETRATING  
PERMANENT**

**ANTISEPTIC  
GERMICIDAL**

AN IDEAL ROOT FILLING.

The package contains two bottles, liquid and powder.

**ZYNOXALL** for ten years has been used and recommended by the most exacting, conscientious and conservative practitioners.

\$1.00 per Package

**FOR SALE BY ALL DEALERS**

**THE ZYNOXALL COMPANY**

407 Burton Building

State and Lake Streets

CHICAGO

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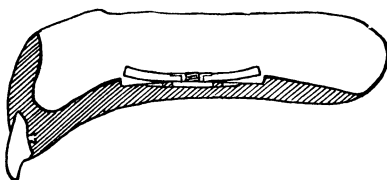


# DR. FRED A. H. OLSEN'S UNIVERSAL SUCTION

CUT ACTUAL SIZE

(PATENT APPLIED FOR)

FIRST METHOD



Section showing the "UNIVERSAL" VULCANIZED  
IN—Note how attached

While the "UNIVERSAL" can be **VULCANIZED** in old or new plates easier than any other suction made, the simplest way to use it is **WITHOUT VULCANIZING**. Is easy to insert in gold, aluminum, and other metal plates.

WRITE FOR LITERATURE

SOLD BY ALL DEALERS  
AND BY

**OLSEN DENTAL SPEC. CO.**

PRICE: \$2.00 per BOX of SIX

2439 Armitage Avenue

CHICAGO

**WANTED:** Every dentist who has anything to sell or exchange, be it instruments, material, furniture or industrial stock, to send us a list of same, stating the very lowest price acceptable, either cash or exchange merchandise. We have numerous inquiries for **BARGAINS** and can dispose of any such to your advantage.

Address all communications to **EXCHANGE DEPARTMENT**  
**AMERICAN DENTAL JOURNAL, 39 State Street, Chicago, Ill.**

## Have Your Old Burs Recut 28 Cents Per Dozen

On account of the great number of burs which we receive daily, and due to a new process which we have adopted, we are enabled to make this very low price.

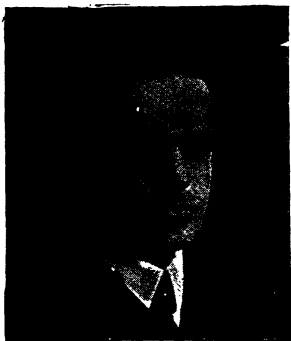
**Sharp Instruments Help Towards  
PAINLESS DENTISTRY**

and are a continual source of satisfaction and time saver to operator.

**Try Us Once**

In your remittance  
allow for return postage.

**THE ROSS DENTAL MFG CO.**  
**39 State Street CHICAGO**



## Drs. Reese & Wiedhofft

The Chicago Dental Laboratory Co.

65 Randolph Street  
CHICAGO, - ILL.

Phone 3910 Cent.

Dear Doctor:-

How do you figure profits?

We don't mean to be impertinent, but it has occurred to us that possibly you think you can do your laboratory work yourself more profitably than by sending it to us.

Now, Doctor, just figure accurately and in detail the cost to you of doing your own laboratory work. Don't be misled by the erroneous idea that you are making the most of your time by doing laboratory work when you have no operative work to do. Take a fair and reasonable account of your time. Remember it's the most important part of your capital.

If you do your laboratory work through the day, you are doing it in time that might be much more profitably spent at the chair. If you are doing it at night or Sundays, you are drawing on your reserve capital--doing laboratory work in time that might be spent much more profitably in rest, study or extending your practice through social activity.

Just take a fair account of the time, the nervous and physical energy,

# THE WORLD'S FOREMOST DENTAL LABORATORY

---



the money spent and the results you get in doing your own laboratory work, and match these against our charges and the results we give you.

Honestly now, when you do your own work aren't you putting your capital out at savings bank interest, when if we did the work you'd be getting a real industrial profit on it?

Send us some work to-day--you'll be surprised at the short time required to do it and delighted with the perfect results--more than satisfied--enthusiastic--and glad to let us do all your laboratory work, for then you'll have more time for the profitable work at the chair, more time to build up your practice, more time to--oh, you'll attend to what to do with it all right.

Sounds fine, doesn't it? Make good on it--we'll do our part--let us have an order now to start things.

Very truly yours,

*Reese Wiedhofft*

P.S.--Drop us a line for price-list,  
mailing boxes and stickers.



Send for comic cards, colors, size 7x9

## “Don’t Scare”

OR HURT YOUR PATIENT, BUT USE

## ODONTOLINE

With this anesthetic you can grind down sensitive teeth for shell crowns, prepare cavities for fillings or inlays, remove live pulps or extract any number of teeth without one bit of pain.

Simply inject into the periodental membrane at the neck of the tooth, wait about two minutes and proceed with the work.

ODONTOLINE does not reach the circulation, it is localized, consequently you get the maximum amount of anesthesia from a very small amount of anesthetic used.

Dentists that have once used ODONTOLINE refuse to quit.

ONE OUNCE, 50c

FIVE OUNCES, \$2.00

25c FOR SAMPLE

**Louisville Dental Laby. & Mfg. Co.**

BOX 686

LOUISVILLE, KENTUCKY

## WE MANUFACTURE SPECIAL TOOLS, INSTRUMENTS AND APPLIANCES

Inventions referred to us will  
be strictly confidential.

Estimates given for high class  
manufacturing.

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**VERNON SPECIALTY CO.**  
19 - 21 Wabash Avenue, CHICAGO, ILLS.

By mentioning the AMERICAN DENTAL JOURNAL when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.

## Miller's Local Anaesthetic

Completely fills Dentistry's long felt want and is in every way the

### IDEAL ANAESTHETIC

Contains no Cocaine or any Cocaine derivatives. Is absolutely safe to use, works quickly and efficiently.

Never causes any evil "after effects."

Splendid drawing card for increased practice.

In the form of a Hypodermic Tablet, affording opportunity for perfectly fresh solution as required.

You owe it to yourself to investigate this new Local Anaesthetic.

In tubes of 35 tablets at One dollar.

If your depot will not supply you, write us giving the name of your dealer, and we will see that you are supplied.

Samples  
sent  
**FREE**  
on  
Request.

**NOTE  
THESE  
FACTS**

**Miller and Kramer Chemical Company**

ADRIAN, MICH., U. S. A.

## SIL-VERI-LUM

(DUNN)

### *A Metal Substance for Lining Rubber Plates*

Makes one, when finished, equal in every way to a swaged metal base, while having the "good fit" of the RUBBER PLATE. Will amalgamate perfectly with any colored rubber and show a metal thickness of 30 gauge in the finished plate.

IT IS durable in every way and makes the plate

### PERFECTLY SANITARY

A trial of **SIL-VERI-LUM** will convince the progressive plate maker of the truth of this statement.

*NOTE—Any Laboratory will supply Sil-Veri-Lum when specified*

**Price per box (6 sheets), \$2.50      Single sheets, \$0.50**

(Cash must accompany all orders sent direct.)

Six Sheets will line 9 upper or 6 upper and 6 lower Plates

*For sale by Any Dealer in Dental Supplies or direct*

## DUNN DENTAL SPECIALTY COMPANY

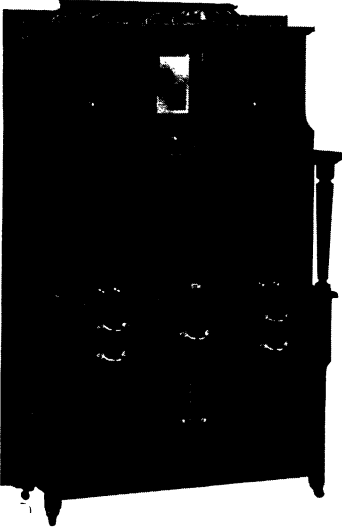
1108 Masonic Temple

Chicago, Illinois

**SIL-VERI-LUM** enables you to gain a better fee, renders the patient the very best service, and its application is so simple that a boy of twelve can apply it.

By mentioning the AMERICAN DENTAL JOURNAL when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.

# DENTAL FURNITURE



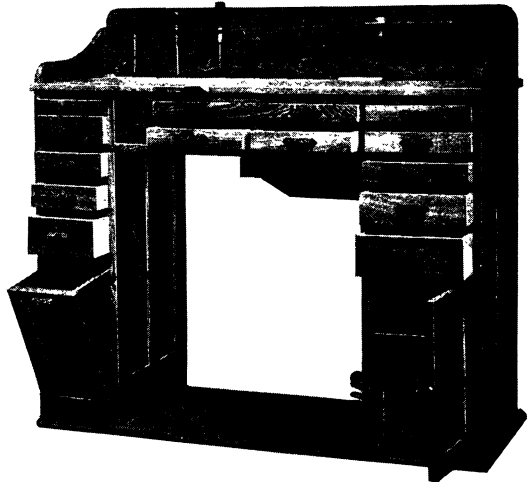
Over twenty-five years' experience in manufacturing high-grade cabinet work of every description, insures the purchaser that the dental cabinets and workbenches which he may select of our make will be of the latest designs, best workmanship, and most desirable labor-saving devices.

Our cabinets are made by the best mechanics, from selected, seasoned, and kiln-dried lumber, have substantial brass hardware, 3-ply bird's-eye maple drawer bottoms, plate-glass working tops and medicine shelves, and are finished in any color desired.

Our products are for sale by dental supply houses throughout the country at the lowest prices consistent with good workmanship. Our stock is large and complete.

**Established 1885**

**Catalog and  
prices upon  
Application**



## JESSEN & ROSBERG

MANUFACTURERS

1310-1326 W. Kinzie St.

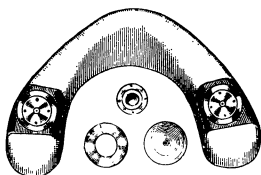
Chicago, Ill.

For Sale by

**The Ross Dental Mfg. Co.**

39 State St., Chicago, U. S. A.

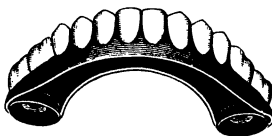
By mentioning the AMERICAN DENTAL JOURNAL when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.



(Lower Cast)

# Stop

That disagreeable "bone or dish rattle" by using the "EUREKA."



(Medium Size)

The cups are removable—an exclusive feature of the "EUREKA" which makes it superior to all others. Price \$2.00 per box three sets

**EUREKA SUCTION CO.,**

**Loudonville, Ohio**



## ZHONGIVA

SUGGESTED AND USED BY DR. D. D. SMITH IN ALVEOLAR PYORRHEA AND OTHER MOUTH DISORDERS.

Twenty Years' Professional Endorsement and Use

**Dentists** are earnestly urged to study the prompt and positive remedial action of Zhongiva upon the mucous membrane of the mouth, in Alveolar Pyorrhea, any condition of gum recession, loosening of the teeth, distress from wearing plates, painful erupting wisdom teeth, or any inflamed condition of the mouth.

Zhongiva is Antiseptic, Antiphlogistic and Germicidal

At all Druggists and Dental Supply Houses. SAMPLES SENT ON REQUEST BY

**James J. Ottinger, Mfr.** Spruce and 20th Streets  
PHILADELPHIA, PA.

*How Do You Sterilize?*

*The Dr. Stamper Combined Sterilizer, Water & Spray Heater, presents the best, easiest and most efficient method known.*

*Try it at our risk.*

*Made in white enamel or nickel and for use of either gas, alcohol or electricity.*

*Talk to your dealer or write to us for particulars.*

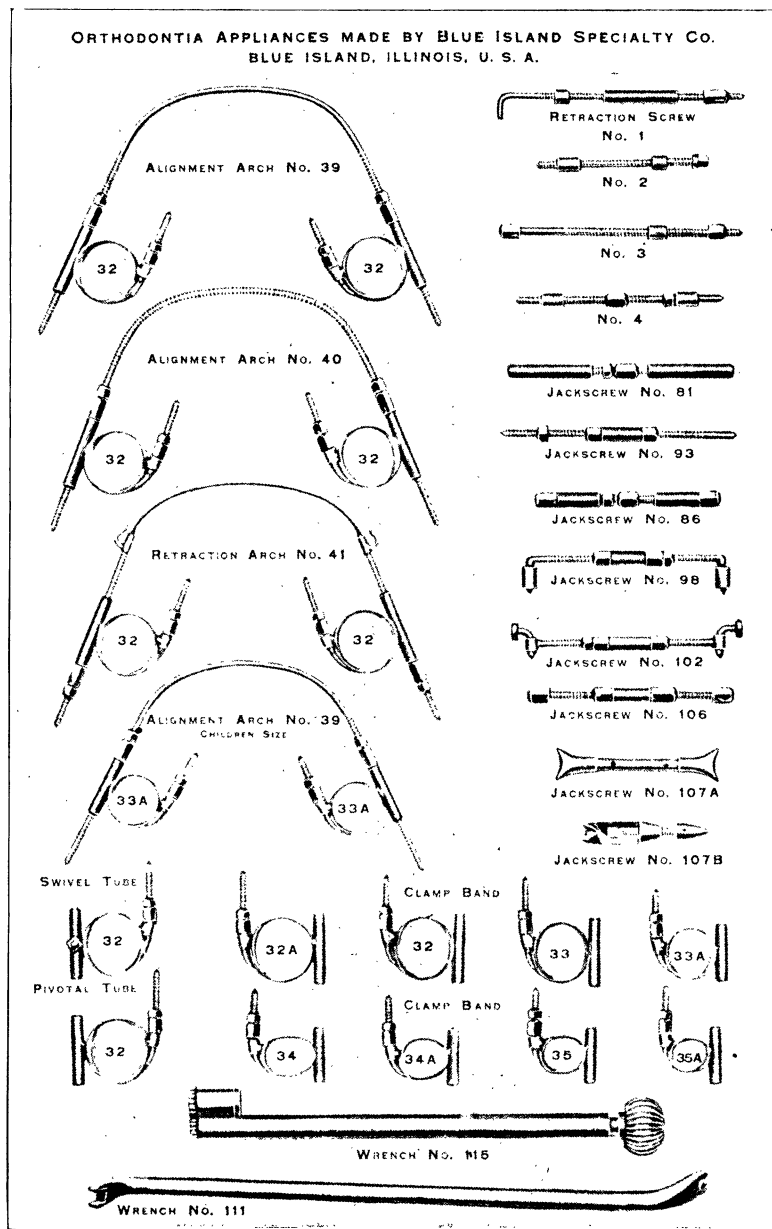
*Paducah Sterilizer Mfg. Co.,  
Incorporated,  
Paducah, Ky.*

**AMERICAN DENTAL JOURNAL**

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# ORTHODONTIA APPLIANCES

NICKEL—SILVER—AND PRECIOUS METAL



We make any kind of precious metals regulating appliances to order.

Prices on application

FOR SALE BY DEALERS EVERYWHERE

**BLUE ISLAND SPECIALTY CO.,**      ::      **Blue Island, Illinois, U. S. A.**  
Orthodontia Appliances and Supplies



## Just a Word With YOU

The dark days are here and many an afternoon you will have to stop work long before you wish, just because you have not the proper light to work by.

I had this to contend with until I got busy and devised a LIGHT which would permit me to work as long as I wished, day or night.

This LIGHT was placed on the market three or four years ago and thousands were sold.

Still I was not satisfied—it was not just what I wanted. I worked and experimented with all styles and sizes and different lengths of focus lenses, trying to get a LIGHT that would be simple, handy, of good appearance, a LIGHT which would satisfy ME, for I knew that if I could make one that would satisfy ME, it SHOULD satisfy anyone, for I do not think that there is any dentist harder to satisfy than I am.

I have now a light that satisfies me; it will satisfy you. It is but seven inches long, two and a half inches in diameter. It has two lenses, one in the rear, a condensing lens and a large one in the front. The front lens can be drawn out and in (telescoped). This permits the changing of the size of the light thrown. The tube is made of heavy brass, seamless tubing, beautifully finished, and the LIGHT will permit of throwing a strong light right in the patient's mouth. YOUR eyes are protected, yet a strong light is thrown on your work table and at both sides. Renewals cost but 30c and you can buy them from any dealer in electric lights or fixtures, right in your own town.

The RODGERS "IMPROVED" LIGHT is furnished with short arm, plug and socket, light and silk covered wire and is sold at \$12.00. It attaches to the regular dental bracket in a moment.

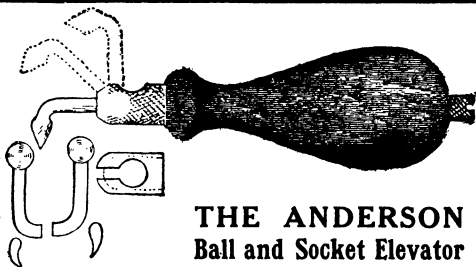
For sale by your dealer, if he cares to get it for you. If not, I will send direct on receipt of price or bank reference.

**DR. C. F. RODGERS,**

::

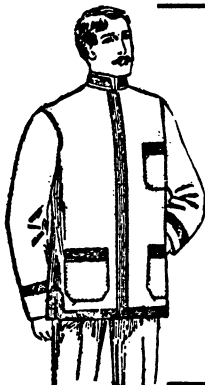
**Conneaut, Ohio**

**A neat and practical tool,  
easily adjusted to any  
angle. Something you have  
been wanting. Try one and  
be convinced. Price \$3.50  
from your dealer or direct**



**THE ANDERSON  
Ball and Socket Elevator**

Manufactured by **R. L. Anderson, M. D., D. D. S.,** Plant City, Fla.



## "Every Coat We Turn Out A Winner"

Dentists' Office Coats for professional work, made of White or fifty other shades of washable materials, fast colors, and thoroughly shrunk before made up. All coats made-to-measure and in any style desired. We pay express or postage to any part of the world. Write for samples, styles and prices, free upon request.

**WEISSFELD BROS.**

Manufacturers of Coats and Uniforms. "The kind they all admire"

117 NASSAU ST. NEW YORK CITY

We have no branches and are not connected with any other firm. Dentists giving orders to agents should specify Weissfeld Bros. of New York City.

# BARKER'S Porous Wood POLISHERS

Especially Adapted for Polishing Porcelain Teeth with Putty Powder



**Nos. 9-10**  
CONE, POINTED  
Two diameters,  $\frac{5}{8}$  and  $\frac{7}{8}$  inch



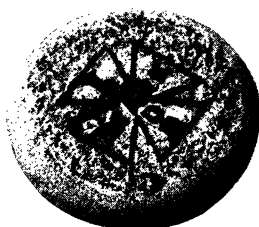
**Nos. 11-12**  
CONE, BLUNT  
Two diameters,  $\frac{5}{8}$  and  $\frac{7}{8}$  inch



**No. 13**  
CONE, BALL END  
One diameter,  $\frac{3}{4}$  inch

These Porous Wood Polishers are made of chemically treated wood, into the pores of which the grinding and polishing materials are incorporated. Their polishing qualities are unsurpassed by felt, rubber and all other substances. The wood absorbs a large per cent of water, preventing heating and warping of the work. The Porous Polishers have won their place by merit, and fill the want that dentists have felt for years—an elastic, rapid and fine polisher. They polish better and last longer than the old style wheels and cones they are so rapidly supplanting.

No.	DESCRIPTION	Diam.
1	Wheel, square edge	... 1 $\frac{1}{2}$
2	Wheel, square edge	... 1 $\frac{1}{2}$
3	Wheel, round edge	... 1 $\frac{1}{2}$
4	Wheel, round edge	... 1 $\frac{1}{2}$
5	Wheel, knife edge	... 1 $\frac{1}{2}$
6	Wheel, knife edge	... 1 $\frac{1}{2}$
7	Wheel, bevel edge	... 1 $\frac{1}{2}$
8	Wheel, bevel edge	... 1 $\frac{1}{2}$
9	Cone, pointed	... 1 $\frac{1}{2}$
10	Cone, pointed	... 1 $\frac{1}{2}$
11	Cone, blunt	... 1 $\frac{1}{2}$
12	Cone, blunt	... 1 $\frac{1}{2}$
13	Cone, ball end	... 1 $\frac{1}{2}$
Price, any style or size, each		\$0.15
Per half dozen		.75



**Nos. 1-2-3-4**  
WHEEL, SQUARE OR ROUND  
EDGE  
Two diameters, 1 $\frac{1}{4}$  and 1 $\frac{1}{2}$  inch



**Nos. 5-6**  
WHEEL, KNIFE EDGE  
Two diameters, 1 $\frac{1}{4}$  and 1 $\frac{1}{2}$  inch



**Nos. 7-8**  
WHEEL, BEVELEDGE  
Two diameters, 1 $\frac{1}{4}$  and 1 $\frac{1}{2}$  inch

**W. H. BARKER, M. D., D. D. S.**

Inventor and Sole Manufacturer

740 West Madison Street

CHICAGO, ILL.

## Northwestern University Dental School.

Northwestern University Building, Chicago.

This School offers exceptional advantages to young men and women for the study of Dentistry. While great attention is paid to the teaching of technic and theory, practical instruction to develop operative skill and dexterity and quick diagnostic judgment is not overlooked.

The Faculty is composed of a large staff of experienced teachers, with DR. G. V. BLACK as Dean.

The equipment and apparatus of the School is especially designed for the successful teaching of modern dentistry. Its large clinic rooms for operative and prosthetic dentistry are unequal anywhere. The opportunities offered students for special preparation to enter independent practice are not exceeded elsewhere.

Advanced students are permitted to remain in school under clinical instructors during the months intervening between the regular annual courses, the great clinics being open continuously the year round.

For the accommodation of practitioners who desire to obtain instruction in the more recent methods and materials employed in dental practice, this School conducts a POST GRADUATE COURSE during the month of June of each year.

The school year covers thirty-two weeks of 6 days in each, of actual teaching. The next annual session begins October 4th, 1910.

For further information address

**DR. C. R. E. KOCH, Secretary**

Room 603, 87 Lake Street, - Chicago, Ill.

By mentioning the AMERICAN DENTAL JOURNAL when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.

# WHEN TO USE ANTI-KAMNIA & CODEINE TABLETS

## DURING AND FOLLOWING OPERATING—

*To ease nagging and shooting pains; To quiet nerve tension and hysteria; To prevent headaches and nausea, Two Tablets before operating; One Tablet an hour when indicated*

## FOR EXTRACTING

*One Anti-Kamnia & Codeine Tablet before extracting and another following will quiet pain and allay irritability*

## PULPITIS AND SENSITIVE DENTINE

*Give One or Two Tablets internally and pack cavity with powdered Tablet. In pericementitis apply powdered Tablet to margin of gum*

## IN TOOTHACHE, EARACHE AND NEURALGIA

*Administer one Anti-Kamnia & Codeine Tablet every two hours*

*For Samples and Literature address*

**THE ANTI-KAMNIA CHEMICAL CO.**

**ST. LOUIS, MO., U.S.A.**

# Hand Piece Hospital Dental Repair Shop

Repairs of any kind and Nickel Plating promptly and satisfactorily executed.

—This is Our Specialty—

Let us estimate your work in this line.

**GEPKE BROTHERS**

100 E. Lake St.

Chicago, U. S. A.

Telephone Central 1609.

# HYALLOY

*Hyalloy* is manufactured after Dr. G. V. Black's method, which is the only one that has ever approached a perfect alloy.

*Hyalloy* has proven its absolute superiority over all of the old method alloys.

*Hyalloy* has been subjected to the most careful and rigid tests known, by the authorities on Alloy, both in and out of the mouth.

*Hyalloy* is made from chemically pure materials which when amalgamated will be found to possess a very smooth feeling, free from granulations.

*Hyalloy* is made in three grades—slow, medium and quick setting, in shavings or filings.

Price "direct to you" per ounce . . . \$ 1.43

Price "direct to you" for 5 ounces . . 6.44

Price "direct to you" for 10 ounces. 11.60

## The Ross Dental Manufacturing Co.

39 STATE STREET  
CHICAGO, U. S. A.

# ACESTORIA



The Only Local Antiseptic Anaesthetic of a Proven Quality. Non-Secret, Non-toxic.

Combination Pure      Action Always Sure

**"NOT HOW CHEAP, BUT HOW GOOD"**

Has stood the test for eighteen years

One Feels a Certain Security When Using "Acestoria"

Prepared only by O. W. GREEN, M.D., L. O. GREEN, D.D.S.

#### PRICES

1-Ounce Bottle, 75c, or 10 1-Ounce Bottles, \$5.00

8-Ounce Bottle, \$4.00

2-Ounce Bottle, \$1.50      12-Ounce Bottle, \$3.50

**Dr. Lelan Otis Green**  
Heyworth Bldg., 42 E. Madison St., Chicago, Ill.

Guaranteed under The Food and Drugs Act, June 30th, 1906. Guaranty No. 13656.

## Chicago College of Dental Surgery

DENTAL DEPARTMENT VALPARAISO UNIVERSITY.  
FOUNDED IN 1880      2420 GRADUATES

HAS CONTINUED UNDER THE MANAGEMENT OF ITS FOUNDERS SINCE ITS ORGANIZATION.

THE TWENTY-SIXTH ANNUAL COURSE OF INSTRUCTION WILL  
BEGIN OCT. 7, 1907, ENDING ABOUT JUNE 1, 1908.

INSTRUCTION IS COMPLETE IN EVERY DETAIL.

THE CLINICAL MATERIAL IS ABUNDANT, WHILE THE COLLEGE BUILDING AND ITS  
EQUIPMENT OFFER UNSURPASSED FACILITIES  
TO THE DENTAL STUDENT.

FOR CATALOGUE ADDRESS

**DR. TRUMAN W. BROPHY,**

DEAN

770 W. HARRISON ST.

CHICAGO, ILL.

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# NATIONAL DENTAL LABORATORY CO.

(Incorporated)

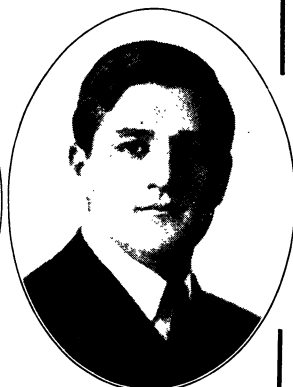
SECOND FLOOR, 59 DEARBORN STREET, CHICAGO



H. F. Schleiffarth, D. D. S.  
C. C. D. S. 1901.



Chas. Ziegler



Edw. C. Boecker

## Rubber Plates      Rubber Plates Rubber Plates

*Made of BOWSPRING Rubber.  
Traun's Pink for the gum. 20th  
Century Combination. Anatomical  
Mould teeth, GUARANTEED  
to fit or money REFUNDED.  
PRICE \$2.25*

☞ Send order today. Our plates will prove highly satisfactory to you, they are perfect and will enable you to get higher fees. We can truthfully claim the same for

## OUR CROWN AND BRIDGEWORK

ONLY HIGH GRADE GOLD AND SOLDER USED  
: : NO SO-CALLED SPECIALS : :

- ☞ Our bridgework does not turn black in the mouth.  
☞ Send a postal for price list and mailing boxes.

PHONE, RANDOLPH 3544

# Notice! to Dentists who do their cast work with Vacuum, Steam or Pressure Machine

## Bohr's New Aluminum Combination Metal for Plates is the only one that will make satisfactory Dentures

No shrinkage, expansion, or pit holes. It makes a clean, sharp, true cast, reproducing all lines perfectly. Is light, strong, and durable, also impervious to the disintegrating tendencies of oral secretions so destructive to unalloyed aluminum.

Bohr's Combination Aluminum (2 ingots enough for 3 plates), per ingot..	\$0.50
Bohr's Aluminum Casting Investment, 3-pound can.....	.25
Bohr's Inlay Metal.....	2.50
Bohr's Inlay Investment, 3 pounds.....	.25
Bohr's New Flask for casting plates, with full directions.....	1.00

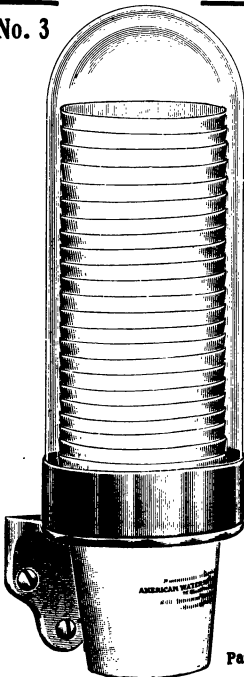
Used by most good laboratories. For sale at all dental depots, or direct.

**TRY US ON YOUR NEXT DIFFICULT CAST ALUMINUM CASE.**

Send for price list.

**JOHN BOHR, D. D. S., Cast Metal Specialist**  
Masonic Temple, .. .. Chicago, Illinois

No. 3



### IMPROVED ASEPTIC

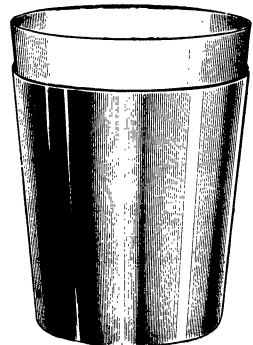
## Paper Cups for the Dental Profession

The Automatic Dental Cup Brackets are very neat, attractive and convenient.

The Improved Cups have reinforced bottoms, making them absolutely waterproof.

Up-to-date Dentists use them and up-to-date patients appreciate them as they prove a safeguard against infection, and guessing whether glass is sterilized is eliminated.

All Dental Supply Houses carry them.



Patents Pending

Manufactured by

**American Water Supply Co. of N. E.**

251 CAUSEWAY ST., BOSTON

Patents Pending

By mentioning the AMERICAN DENTAL JOURNAL when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.

**\$1.00**

**\$1.00**

# **RODECO**

## **A CEMENT OF QUALITY**

*Plastic      No Grit*  
*Easy Flowing*

---

One grade of acid will do the work for Fillings,  
Crown and Bridge Work, Inlays, Orthodontia.

---

*MADE IN ALL COLORS*

---

**DIRECT TO YOU**

**One Dollar the Box.**

**Six Boxes Five Dollars.**

---

**FREE** With your first order for 6 boxes  
we will send a large German  
Cement Spatula worth \$1.00. **FREE**

**The Ross Dental Manufacturing Co.**

**39 State Street**

**\$1.00**

**CHICAGO, U. S. A.**

**\$1.00**



# PARA RUBBER

Progressive plate makers should "get in" on this at once. Costs but a very little more than ordinary rubber, but gives far reaching results. Made of the finest selections of Para Rubber grown in the Para Valley of Brazil, from which it gets its name.

## Dunn's Pure Para

Is the product of carefully selected material, absolutely free from all poisonous coloring matter so destructive to tissue. It vulcanizes a beautiful olive black resembling WHALEBONE in appearance and flexibility, and will take a higher polish than any other rubber. For purity, strength, durability, elasticity and lightness, it has no equal. Revulcanizing does not destroy any of these properties.

Price, Sample Sheets.....	\$0.25
Sample Boxes, $\frac{1}{4}$ lb.....	1.25
Packed in $\frac{1}{2}$ lb. Boxes, per lb.....	5.00

## Dunn's Ideal Pink

Produces the finest imitation of the gum tissue and vulcanizes a hard flinty surface, capable of taking the highest polish in finishing.

Price, Single Sheet.....	\$0.35
$\frac{1}{4}$ lb. Box.....	1.75
Packed in $\frac{1}{2}$ lb. Boxes, per lb.....	7.00

(CASH MUST ACCOMPANY ALL ORDERS SENT DIRECT.)

NOTE—Any Laboratory will supply DUNN'S PURE PARA RUBBER and DUNN'S IDEAL PINK RUBBER when specified, at slight additional cost.

FOR SALE BY

Any Dealer in Dental Supplies or Direct

## Dunn Dental Specialty Co.

1108 Masonic Temple

Chicago, Illinois

# **POLK'S Dental Register AND Directory OF United States and Canada**

**NINTH REVISED EDITION—SEVENTEENTH YEAR  
READY IN SEPTEMBER 1910**

**LIST OF OVER 40,000 DENTISTS**

Arranged alphabetically by Countries, States and Provinces,  
giving postoffice address, and location, date and college  
of graduation or authority to practice

**DENTAL COLLEGES**

With Location, Officers, Etc.

All the Extinct Dental Colleges of the United States and Canada,  
the various Dental Societies, a Synopsis of the laws of Reg-  
istration, and other laws relating to the Profession in  
each State and Province, the U. S. Army Dental  
Corps, Dental Journals, with names of editors,  
frequency of publication and subscription rates.

AND AN

**INDEX TO DENTISTS**

Arranged Alphabetically, with the Number of the Page on which  
the Name and Dental Record Appears.

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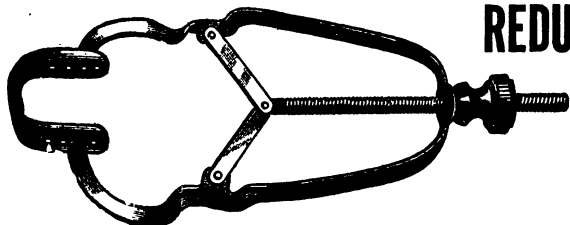
Descriptive matter promptly furnished upon application to the  
Publishers.

**R. L. POLK & CO.**

**DETROIT,**

**MICHIGAN**

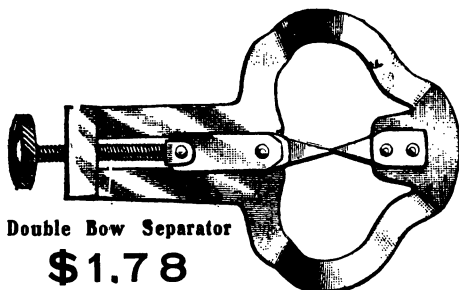
## REDUCED PRICES



**Matrix Retainer**

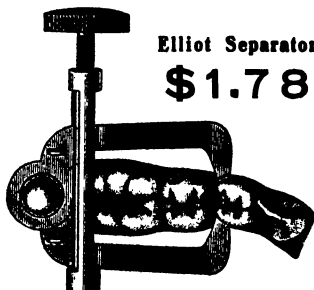
With 1 doz. Bands..... **\$1.38**

Extra Bands per doz. **19c**



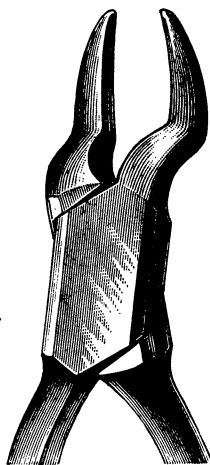
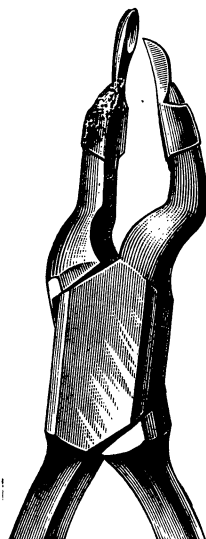
**Double Bow Separator**

**\$1.78**



**Elliot Separator**

**\$1.78**



## Crown Slitter

Will fit any  
small root  
Forceps

**\$1.37**

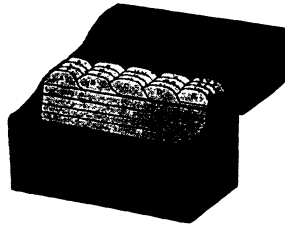
Quality  
Guaranteed

Send for our  
Complete  
Catalog

**J. W. ROSS & COMPANY,** 39 STATE ST. ...CHICAGO...  
THE ROSS DENTAL MANUFACTURING COMPANY, SUCCESSORS

## American Dental Card System No. 3

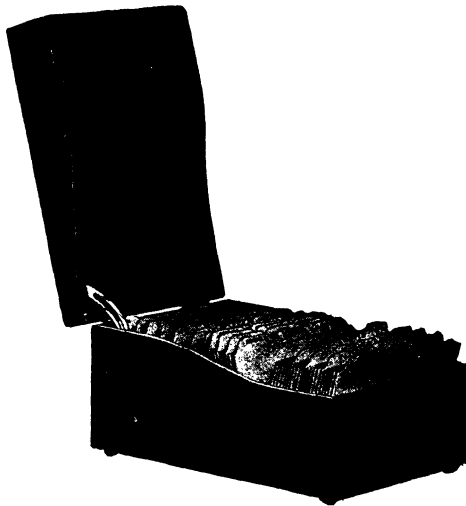
In handsome oak case with cover.



Contains 200 3 x 5 cards (see page 5). 1 set index cards. **\$1.50**  
 Price prepaid.....  
 Case only, prepaid.....**\$1 00**  
 Extra cards, prepaid, per 100.....**.30**  
 Extra indexes, prepaid, per set.....**.20**

## American Dental Card System No. 4

In handsome oak case with oak follow blocks and rubber feet.



13 inches long, to hold 1200 cards. Contains 300 4x6 cards (see page 5).  
 2 sets of index cards, different colors. 15 cash cards.  
 Price.....**\$4.50**  
 By express, prepaid.....**\$5.00**  
 Extra cards, prepaid, per 100.....**.50**  
 Extra index cards, prepaid, per set.....**.30**  
 Cash cards, prepaid, per set of 15.....**.15**  
 Case only.....**2.50**  
 Case only, by express prepaid.....**3.00**

ORDER FROM  
**AMERICAN DENTAL JOURNAL**  
 39 State Street, CHICAGO

By mentioning the AMERICAN DENTAL JOURNAL when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.

# Quality, Price and Service

Our Gold Plate and Gold Solders are the favorites with Crown and Bridge Workers everywhere.

Their use increases the sum total of mechanical efficiency and makes every hour of the day more valuable to every busy dentist.

## PRICE LIST

Gold Foll, 1/4 oz.....	\$ 3.25	23K Gold Plate, per dwt.....	\$1.08
Gold Foll, 1/2 oz.....	12.50	24K Gold Plate, per dwt.....	1.10
Gold Foll, per oz.....	25.00	Crown Metal, per dwt.....	1.40
Gold Cylinders, 1/4 oz.....	3.50	Clasp Metal, per dwt.....	1.00
Gold Cylinders, 1/2 oz.....	13.25	Clasp wire, per dwt.....	1.05
Gold Cylinders, per oz.....	26.50	18K Gold Wire, per dwt.....	.92
14K Solder, per dwt.....	.65	20K Gold Wire, per dwt.....	1.02
16K Solder, per dwt.....	.75	Platinum Sheet.....	Market Price
18K Solder, per dwt.....	.85	Platinum Foll, for inlay Work	
20K Solder, per dwt.....	.95	.....	Market Price
22K Solder, per dwt.....	1.00	Platinum Iridio Wire...Market Price	
Coin Solder.....	.95	Pure Silver.....	Market Price
Silver Solder, per oz.....	.90	Pure Zinc, per oz.....	.10
18K Gold Plate, per dwt.....	.85	Pure Tin, per oz.....	.07
20K Gold Plate, per dwt.....	.95	Pure Copper, per oz.....	.05
22K Gold Plate, per dwt.....	1.05	White Diamond Alloy, per oz....	1.50
Coin Gold Plate, per dwt.....	1.02		

Unequaled mail order service. Large stock to select from. All orders filled as soon as they reach us—and back to you as fast as the mail or express can carry them. There is no delay at our end of the line.

**WE PAY THE FOLLOWING CASH PRICES FOR SCRAP GOLD, PLATINUM, ETC.**

	Per Dwt.		Per Dwt.
Gold Fillings.....	\$1.00	Gold Fillings .....	.60 to .75
Gold Scrap.....	.72 to .88	Scrap Platinum.....	Market Price

**BENCH AND FLOOR SWEEPINGS REFINED**

## Thomas J. Dee & Co. Gold, Silver and Platinum Refiners

Main Office and Salesroom:  
67-69 Washington Street

Smelting Works:  
317 East Ontario Street

**CHICAGO**

By mentioning the AMERICAN DENTAL JOURNAL when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.

**American  
Brains**

**Modern  
Machines**

**Scientific  
Methods**

# Peerless Broaches

## PEERLESS BROACHES—

Get the Pulp the first time—  
Have sharp barbs that last—  
Do not break easily—  
Are tempered correctly.

Genuine Peerless Broaches are manufactured and sold only by us under the Blue Diamond label, one-half dozen in a package.

XX-Fine   X-Fine   Fine   Medium   Coarse   Assorted

Price, "Direct to You,"

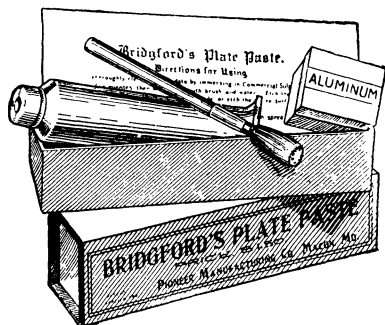
1 Dozen.....	\$0.65
½ Gross .....	3.50
1 Gross .....	6.75

**The Ross Dental  
Manufacturing Company**

**39 State Street**

**Chicago, U. S. A.**

By mentioning the AMERICAN DENTAL JOURNAL when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.



## Bridgford's Plate Paste

MAKES MISFIT PLATES FIT

### HOW?

BY applying the paste on back of plate and pressing to place you will have as sharp an impression as any taken with the usual impression materials. When vulcanized and finished, it has a beautiful Aluminum Surface.

Flask with one pour—that's all, then you'll hear no more—"Doctor, my plate drops down when I talk or eat."

Enough for 6 to 10  
Plates

Price, \$1.50 per tube

Full Directions With  
Each Package

For sale by dealers or direct

The Pioneer Manufacturing Company

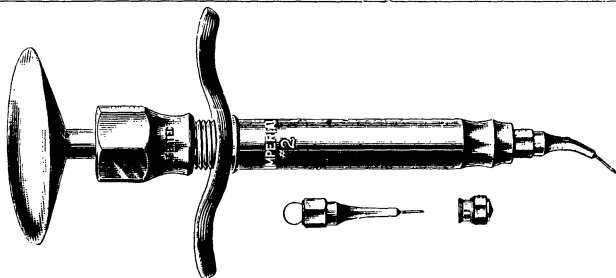
MACON, MISSOURI, U. S. A.

When ordering direct,  
send money order or draft

ELLIOTT & COMPANY, Edinburgh, Scotland  
Sole Agent England, Ireland and Scotland

LITTLE STORIES ABOUT RANDALL-FAICHNEY PRODUCTS—No. 6

## The Imperial Dental Syringe



No Waste of Anaesthetic. No Waste of Time. No Waste of Money on Repairs.

A powerful, unbreakable anaesthesia syringe, sufficiently large to fill several teeth at one loading, and strong enough to be economical. Made of extra thick metal; funnel shaped packing box, with special durable packing, extension piston rod, extra small, to give compound pressure; fitted with large oval button, and strong, well shaped finger bars—giving a feeling of comfort to the operator. A wrench is supplied with each syringe to tighten packing and eliminate leakage.

Imperial No. 1, Round Button, including wrench .....\$2.00  
Imperial No. 2, Oval Button, including wrench ..... 2.00  
Either pattern complete, in leather case, with two needles..... 3.00

THE RANDALL  
BOSTON,



FAICHNEY CO.  
U. S. A.

MANUFACTURERS OF DISTINCTIVE DENTAL AND SURGICAL SPECIALTIES

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# The Efficiency

OF

# LAVORIS

TRADE MARK

The  
Original  
**ZINC CHLORIDE**  
Mouth Wash

Is what has made it exceptionally popular with the profession.

Merit is not only expected—it is demanded.

When you prescribe LAVORIS you are prescribing a preparation of known efficiency—you can rest assured that your patients will be benefited and pleased. LAVORIS is more convincing than words. When you wish samples for office use let us know.

**LAVORIS CHEMICAL COMPANY**

Minneapolis

:

:

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:

Minnesota





**Morgan, Hastings & Co.**  
817-21 FILBERT STREET  
PHILADELPHIA,  
PA.

OUR SPECIALTY

## **Extra Pliable BURNISH Gold Cylinders**

THESE Cylinders are known the world over and now have a wider reputation than our Gold Foil Ropes and Regular Cylinders which are the standard of quality everywhere. Order direct if not obtainable from your dealer.

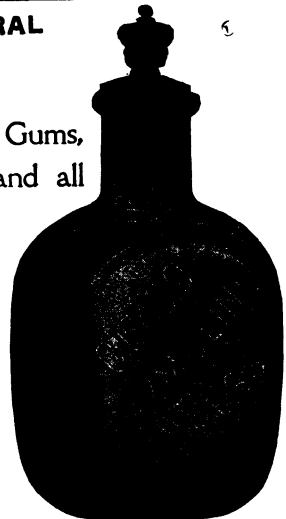
# **GLYCO-THYMOLINE**

**IS INDICATED WHEREVER THE ORAL  
SECRETIONS ARE FOUND  
TO BE ACID.**

In Pyorrhea, Alveolar Abscess, Spongy Gums, Chronic Ulceration, Abscessed Antrum, and all Abnormal conditions of the mouth the **Alkaline Antiseptic** treatment cannot be too strongly advocated.

**SPECIAL OFFER.**—This Sprinkle Top Bracket Bottle, together with samples for your patients, will be sent free to any dentist mentioning this journal.

**Kress & Owen Company,**  
210 FULTON STREET. NEW YORK CITY.



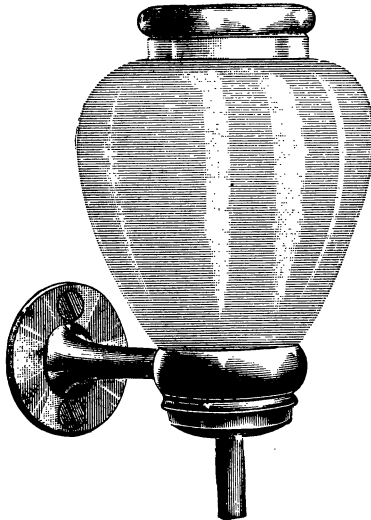
# **THE ALKALINE ANTISEPTIC**

**We GUARANTEE this Sanitary Article for FIVE Years**

**OL-SE-CO**  
TRADE MARK

# Automatic Liquid Soap Jar

**NOW USED BY OVER 12,000  
OF THE DENTAL PROFESSION**

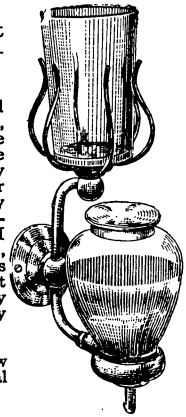


**No. 1. Price \$2.00**  
Press the Button and it flows into your hand

One of the foremost  
Dentists of Philadel-  
phia writes us:

"The Automatic Liquid Soap Jar and OL-SE-CO, which I purchased some time ago, has proven to be one of the most satisfactory investments I have ever made. The Jar is a very practical ornament and OL-SE-CO is the best soap I have ever used. In fact, the dispenser occasions so much commendation as it is in plain sight of every patient who comes into my operating room."

(The Doctor knows how to advertise in an ethical way.—Ed)

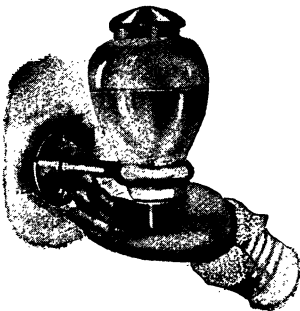


**No. 4**  
Price Complete, \$4.00

No. 4 is a combination Fixture made of brass, heavily nickeled or oxidized with drinking glass, screws, etc., ready to be placed in position. The pictures show the device; it is serviceable and always just where you can find it.

**OL-SE-CO**

is recognized by the Dental Supply Houses throughout the United States, Canada and Cuba as the "Standard" Liquid Soap upon the market. Olive oil with c. p. glycerine and no alcohol makes a fine soap for the hands, face and bath. This sanitary method with a high grade soap is more economical than cake soap. Why not buy a dispenser and a quart of OL-SE-CO for \$2.75? Order from



The Automatic Jar and the Modern  
Way to Use Soap.

**J. W. ROSS & CO.**

39 STATE ST. CHICAGO.

or direct from the

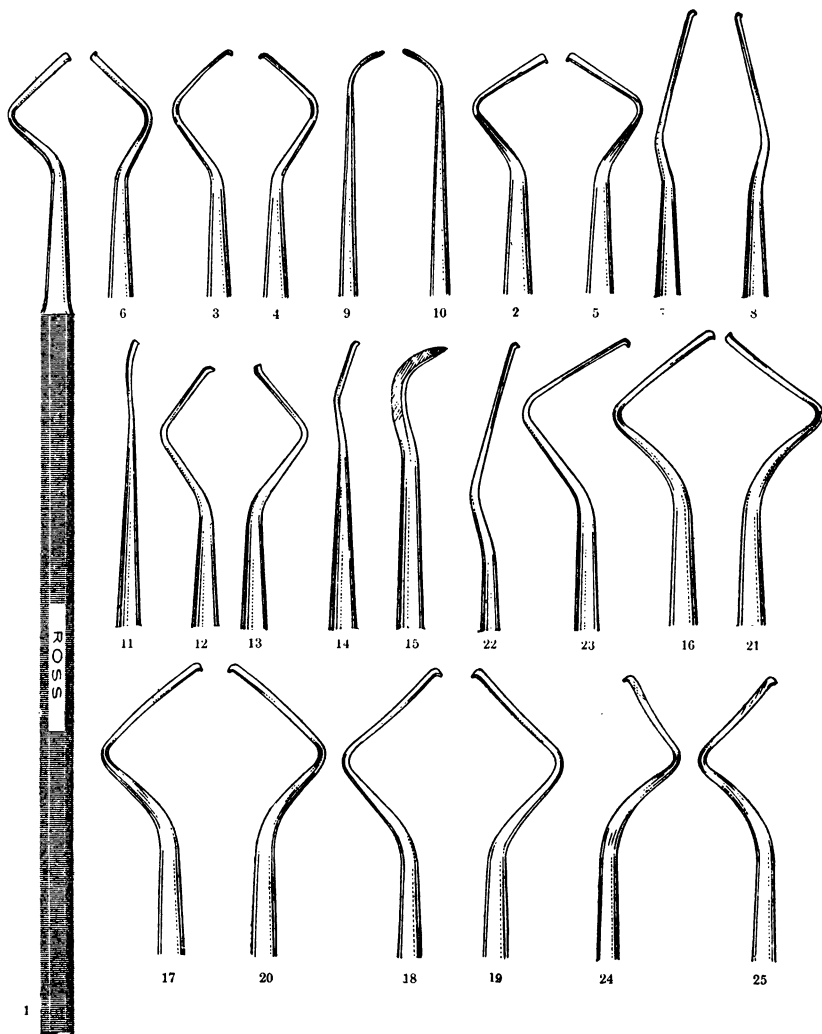
**SAPONOL CHEMICAL COMPANY,**

1938 Park Ave., N. Y. City.

Catalogue and Literature Sent on Request.

By mentioning the AMERICAN DENTAL JOURNAL when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.

# LOGAN-BUCKLEY PYORRHEA SCALERS



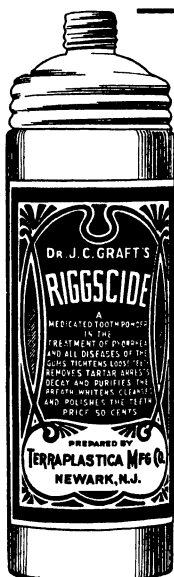
**25 Instruments—\$9.75—Direct to You**

They are now in stock and can be shipped to you the minute your order reaches us. **NO DELAY.**

**The Ross Dental Manufacturing Co.**

39 State Street, Chicago, U. S. A.

By mentioning the **AMERICAN DENTAL JOURNAL** when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.



# I CAN PROVE THAT RIGGSCIDE CURES PYORRHEA

**R**IGGSCIDE is composed of a liquid and powder. The liquid is used preceding instrumentation. It is pumped into pus pockets on a broach wrapped with cotton. Scaling and polishing may then be done with little hemorrhage and practically no pain. The liquid acts as a gentle anesthetic to the soft tissues and obtunds the cementum. It stimulates the formation of healthy granulations and tones up the entire tissue.

The powder is given the patient for home use. In from seven to ten office treatments, at intervals of three days, the gums and teeth of even desperate cases show a greatly improved condition.

## TRIAL OFFER

Write me on your professional letterhead and I will send you a full-sized package containing liquid and powder. Use it according to directions. When you are satisfied with the results, send me \$1.00. If not satisfied, return the unused portion.

**J. C. GRAFT, D. D. S.**

**5 West Park Street : : : NEWARK, N. J.**

# NO MORE FAILURES

IF YOU USE

## DR. VEO'S REMEDY

FOR

### Pyorrhea Alveolaris

Dr. Veo's Remedy is the original Pyorrhea remedy. It gives positive results and quickly. It stops bleeding at once. It is also the best remedy for the treatment of pulpless teeth, alveolar abscess, sensitive cavities, and inflamed and bleeding gums. Dr. Veo's Remedy is non-secret and is guaranteed under the Food and Drugs Act of June 30, 1906.

**PRICE, \$2.00**

**Your Dental Dealer, or sent prepaid upon receipt of price**

PREPARED ONLY BY

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**74 Boylston St.**

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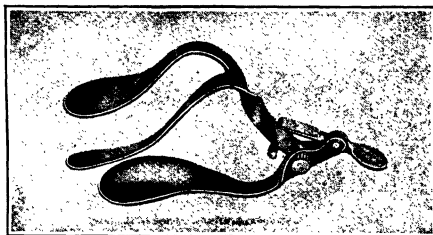
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**It  
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**It  
Saves  
Pain**

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## **A Time Saver**

It is instantly adjusted, and meets all the requirements of a perfect dam, affording not only dryness but also complete freedom of both hands to the operator while mixing cements and adjusting crowns and bridges, or inserting fillings in the roots or crowns of teeth where dryness is essential, insuring a saving of one-half to two-thirds of the time usually required for such operations.

Adjustable to either side of mouth. It allows the use of the matrix when desired, an advantage unknown where clamps are used.

Prolonged dryness can be maintained by aid of the saliva ejector.

It is made of the best sheet German silver, heavily nickeled and highly polished, thus insuring strength and beauty.

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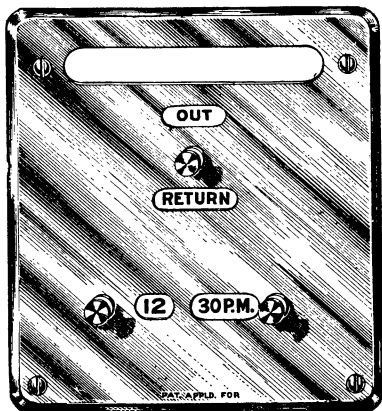
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# !! F R E E !!

## The Office Indicator

as described below, will be given free as a premium with one year cash subscriptions to AMERICAN DENTAL JOURNAL

### DESCRIPTION



Within the shell of a bit of bronze metal about four inches square an inventive genius has arranged to answer to any caller who can read, almost any question which a caller needs to know at the door of a man's office. The illustration carries the possibilities of the contrivance.

The large slot in blank at the top covers the name card of the person who sets the dial. The duller visitor who is able to read can determine from this presentation of the plate that John Smith is out and will return at 12:30 o'clock in the afternoon.

But this is only one of the phases of the three dials which underlie the surface of the plate

and which may be turned to read in a variety of ways. The office tenant, returning, may turn the upper dial stem to read "In," leaving the other spaces blank. The left hand dial at the bottom turns to show the hours from 1 to 12 o'clock, with one space blank; in the complementary dial at the right is printed "minutes," ":45 p. m.," ":30 p. m.," ":15 p. m.," ":45 a. m.," ":30 a. m.," ":15 a. m.," and plain "a. m." and "p. m."

Thus with the two bottom dials the reading of the time for return may be changed from the illustration to read by quarter hours for any hour in the twenty-four. Or, if the occupant expects to be gone only a matter of minutes he may turn the right hand dial to expose "minutes" and with the other dial use any figure up to the "12" which designates the hours.

The dials lock and can be changed only by means of a key which eliminates the possibility of the dials being changed by some ill-natured or mischievous person.

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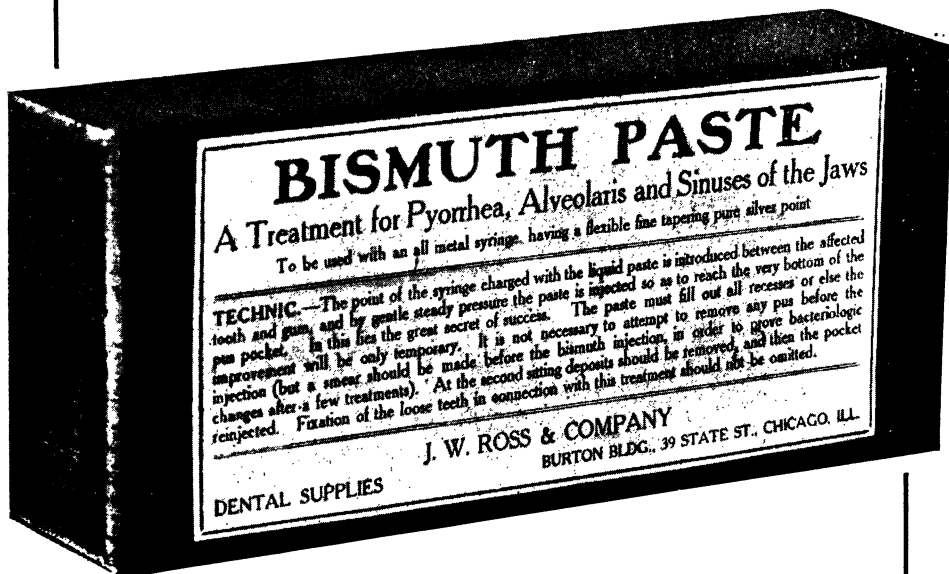
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**TECHNIC.**—The point of the syringe charged with the liquid paste is introduced between the affected tooth and gum, and by gentle steady pressure the paste is injected so as to reach the very bottom of the pus pocket. In this lies the great secret of success. The paste must fill out all recesses or else the improvement will be only temporary. It is not necessary to attempt to remove any pus before the injection (but a smear should be made before the bismuth injection, in order to prove bacteriologic changes after a few treatments). At the second sitting deposits should be removed, and then the pocket re-injected. Fixation of the loose teeth in connection with this treatment should not be omitted.

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